

TOWNSHIP OF TEWKSBURY
LAND USE BOARD

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IN THE MATTER OF: :
: TRANSCRIPT
FILE NO. 13-03 : OF
CELLCO PARTNERSHIP D/B/A : PROCEEDINGS
VERIZON WIRELESS & GLOBAL: (VOLUME III)
TOWER, BLOCK 44, LOT 26 :
-----:

Wednesday, May 7, 2014
Old Turnpike School
171 Old Turnpike Road
Califon, New Jersey 07830
Commencing at 7:36 p.m.

BOARD MEMBERS PRESENT:

- BLAKE JOHNSTONE, Chairman
- MARY ELIZABETH BAIRD, Member
- SHIRLEY CZAJKOWSKI, Member
- LIBBY DEVLIN, Member
- BRUCE MACKIE, Member
- MIKE MORIARTY, Member
- ROBERT BECKER, Alternate #1
- EDWARD D'ARMIENTO, Alternate #2
- KURT RAHENKAMP, Alternate #3
- DAVID LARSEN, Alternate #4

ALSO PRESENT:

- SHANA L. GOODCHILD, Land Use Administrator
- WILLIAM BURR, P.E., Board Engineer
- CHARLES T. MCGROARTY, P.P., Board Planner
- HANK MENKES, Board RF Engineer

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20 BY: ROBERT F. SIMON, ESQ.
21 Counsel for Basil & Rilda Hone and
22 Patrick & Susan Palmer
23
24
25

I N D E X

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1 CHAIRMAN JOHNSTONE: Next is the
2 beginning of our public hearing for tonight on the
3 Cellco Partnership d/b/a Verizon Wireless & Global
4 Tower, Application 13-03, Block 44, Lot 26,
5 conditional use site plan and variance, use variance
6 due to deviation from conditional use standards.
7 Action deadline 5/31/14.

8 MR. VAN DOREN: Mr. Chairman, let the
9 record reflect, since I'm not eligible to sit, I'm
10 leaving the table.

11 CHAIRMAN JOHNSTONE: You are so
12 removed. Thank you.

13 (Mr. Van Doren is recused.)

14 CHAIRMAN JOHNSTONE: All right, good
15 evening, Counsel. Could we have your name for the
16 record, please.

17 MR. MEESE: Good evening, Mr.
18 Chairman, members of the Board. Greg Meese,
19 attorney for the applicant, Cellco Partnership d/b/a
20 Verizon Wireless & Global Tower, LLC.

21 At the last meeting on February 26, the
22 Board had discussed with Mr. Kronk various issues
23 and there was a number of items that were to be
24 addressed by Mr. Kronk. He is working on that;
25 those items are not yet complete. He indicates they

1 will be complete prior to the Board's next meeting,
2 but what I would like to do tonight is move on then
3 to David Stern, the radio frequency engineer. Mr.
4 Stern has submitted a report to the Board with a
5 revised report actually dated December 3 of last
6 year and Mr. Stern will review the need for the site
7 in the community as well as surrounding network of
8 Verizon Wireless, plus the coverage from the
9 existing facilities and how this proposed facility
10 would fit within that existing network.

11 CHAIRMAN JOHNSTONE: Okay. Mr. Meese,
12 as I understand it, a letter was sent to you, just
13 so it's on the record, May 1, 2014 outlining
14 documents that are still remaining -- still remain
15 to be sent to us. Did you receive a copy of that
16 document?

17 MR. MEESE: Yes, I did.

18 CHAIRMAN JOHNSTONE: Okay, and you
19 recognize that we can't move forward on anything
20 else until these documents are received?

21 MR. MEESE: Well, I don't think that's
22 legally correct --

23 CHAIRMAN JOHNSTONE: Well, that's our
24 position.

25 MR. MEESE: I know what you requested.

1 CHAIRMAN JOHNSTONE: Um-hum.

2 MR. MEESE: We're doing our best to
3 comply with each one of your requests.

4 CHAIRMAN JOHNSTONE: Right. What I'm
5 getting at is, we're going to go forward with your
6 expert tonight because that was a report that was
7 sent in quite a while ago. I'm just indicating to
8 you, as to the other witnesses that you've had,
9 we're not going to go forward with them until this
10 information is gotten in to the Board. Do you
11 understand that?

12 MR. MEESE: I don't agree with that.
13 We're not proceeding with any other witnesses
14 tonight because we would like to proceed with
15 witnesses when we've complied as best we can with
16 the comments of the Board at the last two hearings.

17 CHAIRMAN JOHNSTONE: Okay. Well, when
18 was the last hearing?

19 MR. MEESE: February 26.

20 MS. GOODCHILD: February 26.

21 CHAIRMAN JOHNSTONE: Okay, that's what
22 I thought. Okay, so February 26 was the last time
23 you were heard and we still haven't received all the
24 documents we requested on May 1. I'm just giving
25 you a heads-up that I doubt we'll be hearing

1 anything further until we get these documents or
2 there's been some kind of accommodation by your
3 applicant. Okay?

4 In any event, we'll move on at this
5 point in time and move forward with Mr. Stern.

6 Ladies and gentlemen out there, so you
7 understand, we've had a variety of witnesses so far
8 and documentation and testimony. We're not going
9 forward with those people tonight. What we are
10 going forward with, as Mr. Meese has indicated, is
11 their radio RF engineer. We're going to be hearing
12 from him tonight, we will have his direct testimony,
13 it will be followed by the questioning of the
14 members of the Land Use Board up here. Once we have
15 completed our questioning, I will then open it up to
16 the public for questions. One rule I would like you
17 to follow tonight is, when you have a question, that
18 you either come up to the microphone and give us the
19 question or stand where you are and hopefully we'll
20 hear you at that point in time. Keep your voice
21 raised so that we can get it recorded, number one,
22 and more importantly, so the court reporter who's
23 sitting in front of us can take down what you have
24 to say in terms of the questions. And again, I will
25 emphasize, tonight is a night for questions. There

1 will be a point in time some time down the road when
2 you'll have the opportunity to give us your thoughts
3 on this application.

4 Does anybody have any questions about
5 this procedure before we get started?

6 (No response)

7 CHAIRMAN JOHNSTONE: I see no hands
8 being raised, I assume everybody understands.

9 MS. BAIRD: Someone down here.

10 CHAIRMAN JOHNSTONE: Where? Somebody
11 raised their hand? Oh.

12 MR. BECKER: I raised my hand, Mr.
13 Chairman.

14 CHAIRMAN JOHNSTONE: Oh, excuse me,
15 I'm looking out here. My apologies.

16 MR. BECKER: That's fair. If I could
17 just ask if we could ask Mr. Meese, you've
18 recognized that you received the letter. Have you
19 agreed to extend the statutory requirements to July
20 31?

21 MR. MEESE: Yeah, that's fine.

22 CHAIRMAN JOHNSTONE: Okay. Anybody
23 else have any questions before we get started with
24 tonight's testimony?

25 (No response)

1 CHAIRMAN JOHNSTONE: I don't see any
2 hands being raised, so Mr. Meese, it's your turn.

3 MR. MEESE: Thank you, Mr. Chairman.

4 Mr. Stern, you're going to have to
5 raise your right hand and be sworn in.

6

7 D A V I D S T E R N, U.S. Highway 130, Cranbury,
8 New Jersey 08512, sworn by the Board attorney.

9

10 MR. BERNSTEIN: Do you want to give an
11 address, Mr. Stern?

12 MR. STERN: Sure. It's David Stern,
13 S-T-E-R-N, 2450 U.S. Highway 130, Cranbury, New
14 Jersey.

15 MR. BERNSTEIN: Thank you.

16 VOIR DIRE EXAMINATION BY MR. MEESE:

17 Q. Mr. Stern, would you very briefly give
18 your background and experience in the field of radio
19 frequency engineering?

20 A. Sure. I have -- let me start off, I'm
21 a principal in the firm of V-COMM, V hyphen C-O-M-M,
22 Telecommunications Engineering located in Cranbury,
23 New Jersey. We are a consultant to Verizon Wireless
24 on this application. We've been doing that service
25 for Verizon Wireless for over 15 years.

1 I have 30 years of experience in the
2 field of radio frequency communications. I have a
3 bachelor degree in engineering from the University
4 of Illinois, champagne. I was at Motorola
5 Communications in Chicago in their Cellular
6 Engineering Group for six years. I was the Director
7 of Engineering for Cellular One of New Jersey in
8 Philadelphia and Delaware for seven years,
9 responsible for the build-out to their network of
10 400 cell sites for switching offices and a hundred
11 employees. In 1996, with a partner, we formed the
12 firm of V-COMM, providing wireless engineering
13 services to the wireless carriers and public safety
14 agencies throughout the northeast. I've been
15 involved in the design and build of over 2,000 cell
16 sites, I have appeared before more than 200 boards,
17 land use boards, in the State of New Jersey, New
18 York, Pennsylvania, Delaware, West Virginia and
19 Michigan, including this Board, and been found an
20 expert in the field of radio frequency
21 communications.

22 MR. MEESE: I would offer Mr. Stern as
23 an expert in the field of radio frequency
24 communications.

25 CHAIRMAN JOHNSTONE: Mr. Stern, has

1 your license in any of your specialties ever been
2 suspended or revoked for any reason?

3 MR. STERN: I do not have a specific
4 license so I've never had one revoked.

5 CHAIRMAN JOHNSTONE: So you don't have
6 any specific license?

7 MR. STERN: That is correct.

8 CHAIRMAN JOHNSTONE: Have you been
9 reprimanded by any board regarding your specialty?

10 MR. STERN: No, I have not.

11 CHAIRMAN JOHNSTONE: Okay. Anybody
12 have any questions? Anybody?

13 (No response)

14 CHAIRMAN JOHNSTONE: Anybody in the
15 public have any questions of this witness just on
16 his credentials?

17 (No response)

18 CHAIRMAN JOHNSTONE: I don't see any
19 hands.

20 I have no objection to acknowledging
21 him as an expert in his field. Does anyone?

22 (No response)

23 CHAIRMAN JOHNSTONE: So moved.

24 MR. STERN: Thank you.

25 DIRECT EXAMINATION BY MR. MEESE:

1 Q. Now, Mr. Stern --

2 CHAIRMAN JOHNSTONE: Excuse me one.
3 Miss Court Reporter, if, at any point time, you need
4 a break or you're not getting something, waive your
5 hand at me or something.

6 COURT REPORTER: Thank you.

7 Q. Mr. Stern, Verizon Wireless operates a
8 wireless communication network with a license that's
9 issued by the Federal Communications Commission?

10 A. Yes, they do.

11 Q. And those services include what we
12 typically refer to as "mobile telephone service" or
13 "wireless service" together with data and other
14 services?

15 A. Yes, they do. Verizon Wireless has an
16 FCC license, in fact, they have four FCC licenses
17 covering this area of the State of New Jersey in
18 Hunterdon County. They have an 800 megahertz B band
19 license under the name of Cellco Partnership. That
20 is the licensee name in this area for Verizon
21 Wireless when you look at the FCC website. They
22 also have a 700-megahertz license that they were
23 given as part of the DTV transition in the late
24 2000s. They also have a PCS 1900 megahertz license
25 that was gotten in the late '90s, and most recently,

1 they acquired from the FCC the AWS license for 2120
2 megahertz. So they have the requisite license in
3 this area to provide voice and data services
4 throughout Hunterdon County and Tewksbury Township.

5 Q. Now, Verizon Wireless currently
6 operates various antenna facilities that provide
7 coverage around the township?

8 A. Yes, they do.

9 Q. And you have an exhibit that indicates
10 the location of those existing sites and the
11 coverage that is elicited from those sites?

12 A. Yes.

13 Q. And those sites are required in order
14 to provide the licensed services that Verizon
15 Wireless provides to the public?

16 A. Yes, they do.

17 Q. And you're going to be referring to
18 various exhibits tonight but you've also prepared a
19 radio frequency analysis that was dated December 3,
20 I believe, of last year?

21 A. Yes, it is.

22 Q. And that has been submitted to the
23 Board.

24 A. Yes.

25 Q. And most of the substantive data that

1 you'll be presenting tonight is also contained in
2 that report?

3 A. Yes, it is.

4 CHAIRMAN JOHNSTONE: Can I ask one
5 question? Are you going to give us any testimony
6 that is not included in the report of December 3,
7 2013?

8 MR. STERN: Yes.

9 CHAIRMAN JOHNSTONE: You are.

10 MR. STERN: Yes.

11 CHAIRMAN JOHNSTONE: Is there some
12 reason why you haven't put that in writing to us?

13 MR. STERN: It's additional
14 information that we were able to acquire based upon
15 some of the feedback we got in February as well as
16 asking additional data from Verizon Wireless. So it
17 was just more -- it's more data to back up the
18 information we've already provided to you in the
19 report. It's basically support data.

20 CHAIRMAN JOHNSTONE: You're talking
21 about support data as opposed to additional
22 opinions?

23 MR. STERN: Yes.

24 MR. BERNSTEIN: Is this in response to
25 what our professionals had asked of you?

1 MR. STERN: I don't believe I've had
2 any discussions with the professionals.

3 MR. BERNSTEIN: Okay.

4 CHAIRMAN JOHNSTONE: What I'm getting
5 at is: Are you planning on giving us additional
6 opinions tonight that are not included in the report
7 of December 3, 2013?

8 MR. STERN: No.

9 CHAIRMAN JOHNSTONE: So whatever
10 additional information you have that you are going
11 to talk about tonight is basically in support of the
12 opinions that you have already addressed in this
13 report.

14 MR. STERN: Yes.

15 CHAIRMAN JOHNSTONE: I want you to
16 understand that if I find that you're going beyond
17 the scope of this report, I'm going to ask you to
18 stop giving us opinions because it's not fair to
19 anyone in the audience, certainly not anybody up
20 here on the Board and certainly not our
21 professionals, to hear new opinions for the first
22 time tonight and expect us to be able to
23 appropriately ask you questions about it.

24 MR. STERN: Understand.

25 CHAIRMAN JOHNSTONE: Okay. I'm sorry,

1 I didn't mean to interrupt. My apologies.

2 DIRECT EXAMINATION BY MR. MEESE:

3 Q. Mr. Stern, why don't we start with your
4 first exhibit that indicates location of existing
5 sites in and around Tewksbury.

6 A. Sure. Is there an exhibit number
7 we're at now?

8 MS. GOODCHILD: A-15. I have A-15 as
9 the next exhibit number.

10 MR. MEESE: 15, right?

11 MS. GOODCHILD: Yes.

12 MR. BERNSTEIN: Put that A-15 and
13 today's date on the exhibit, legibly.

14 (U.S. geological survey map is marked as
15 Exhibit A-15.)

16 CHAIRMAN JOHNSTONE: Mr. Meese, if
17 he's going to stand there with the exhibit and
18 you're going to stand here, if you'd like to take
19 this one, you can hold that one up there and then he
20 can take the portable one over there.

21 Can everybody hear this? It does work,
22 apparently.

23 Give him the portable one and then you
24 can take this one.

25 MR. MEESE: It might be easier if I

1 just stand next to Mr. Stern.

2 CHAIRMAN JOHNSTONE: That's fine; I'm
3 just trying to make it comfortable for both of you.

4 BY MR. MEESE:

5 Q. Now, Mr. Stern, the exhibit that's just
6 been marked A-15, can you identify what the
7 components of that exhibit are?

8 A. Sure. The exhibit consists of a U.S.
9 geological survey map in black and white giving the
10 topographic information of Tewksbury Township. The
11 red dots identified on the map are Verizon Wireless
12 existing sites. The proposed location is marked
13 with a blue dot and then a green shaded overlay.
14 This information is identical to Page 7 of 14 in my
15 report dated December 3 as provided, so it's
16 identical information.

17 CHAIRMAN JOHNSTONE: For the record,
18 for anybody out there who's interested, that's Map 1
19 of the report that was submitted on December 13,
20 2013. Thank you.

21 Q. And could you identify what those sites
22 are that are located in and around the township?

23 A. Sure. I'm going to start going up to
24 the top of Tewksbury Township is our Fairmont site.
25 The antennas are located atop a 150-foot electrical

1 transmission tower located at 102 Farmville Road.
2 At the very top of the map is our Long Valley 7.
3 It's a 134-foot monopole at 12 Parker Road. Our
4 antennas are located at 126 feet on that monopole.

5 Coming down to the bottom right side of
6 the map of our Lamington site, this tower is an
7 existing 168-foot lattice tower located at
8 Interstate 78 west of Cowperthwaite Road. Our
9 antennas are at 112 feet on their tower.

10 Coming down to the bottom is our
11 Whitehouse Station site. It is an existing 112-foot
12 flagpole and our antennas are at the top of that
13 flagpole. Our Tewksbury site is located on the 150-
14 foot monopole at Interstate 78 and Oldwick Road and
15 our antennas are 90 feet on that monopole.

16 And finally, down in Lebanon Township,
17 we have a Pottersville site, a 152-foot monopole,
18 and our antennas are located at 110 feet and that's
19 located at 291 U.S. Highway 22 in Lebanon Township.

20 And those are the sites currently
21 providing service to Verizon Wireless in this area
22 of Hunterdon County.

23 Q. And the map also indicates a location
24 for the proposed site?

25 A. Yes, we've got the proposed site. The

1 site that we have propagated in the report and in my
2 boards is the original location in the orchard, but
3 moving the location to the top of the hill would
4 barely modify my analysis as far as what we
5 produced. There's about a ten-foot differential
6 between the two locations off antenna height above
7 sea level, and we'll go over that when we get to it.

8 Q. And you have an overlay for that
9 exhibit that indicates the reliable coverage that is
10 gained from those existing sites?

11 A. Yes, I do.

12 All right, this is exactly the map, Map
13 1 from Page 7 of 14 of the report. Let me walk you
14 through it carefully.

15 As part of our analysis, we reviewed
16 the Verizon Wireless coverage information that they
17 had as well as the drive test data from their
18 systems and drive test data would be, we had been
19 able to review from previous work done in this area.
20 We utilized a radio frequency planning tool known as
21 EBX and we did a computer simulation of a
22 propagation in this area. The model we actually use
23 is a TIREM model in EDX. EDX is a widely-used radio
24 frequency tool in the industry. We utilize on-air
25 data to tune this model and what that means is we go

1 out -- an engineer goes out with a radio frequency
2 receiver, a GPS receiver and a computer and measures
3 the signals from the network, and using location
4 data, he's able to map out the information from that
5 drive test and actually measure the signals coming
6 from the network from the different sites in the
7 area. I actually have data that I'll be sharing
8 with you and that is the data that I talked about
9 that's support data for this plot.

10 After reviewing that data, we came back
11 into the simulation and were able to tune the model
12 to better represent the actual data and we were able
13 to use those tuning factors as well to do the
14 predictions of the different antenna heights that we
15 were trying to look for at this location.

16 What the green shading represents is
17 Verizon Wireless reliable service in this area.
18 This is what we're selling as reliable service. The
19 signal represented here, the Verizon technical term
20 that they use is "operational path loss," which
21 means how much loss there is between the transmitter
22 of the base station and the receiver of the mobile
23 and all the different components that go into that
24 calculation. It has been a standard within the
25 Boards in New Jersey I've testified at that it's

1 better to represent that particular number as a
2 signal strength below a milliwatt, below a watt, and
3 in this case, we're using a minus 80 dBm signal,
4 minus 80 dB below -- so it's minus 80 dB below a
5 milliwatt, and that's what this signal represents,
6 actually measure values at the receiver. That is a
7 signal level that Verizon Wireless has set its
8 standard that, below that level, their testing and
9 their engineers have determined there may be
10 inadequate signal to allow for all devices in all
11 environments and those environments would include
12 on-street coverage, walking around, in-vehicle
13 coverage, using the phone properly, which usually
14 means that you're using a Bluetooth headset and the
15 phone is usually in the cup holder next to you.
16 That coverage is very different than the coverage
17 you would have if you would use the phone up at your
18 head level in a car because the signals are going
19 out the window. If the phone winds up in the cup
20 holder next to you, the energy's trying to get out
21 the doors, so it's actually a worse signal strength
22 -- you need more signal strength to get into proper
23 using of a cell phone today than you did before the
24 laws were enacted to eliminate hand-free -- handheld
25 cell phone usage.

1 Q. Does that include also in-building?

2 A. Yes, that's right. And more
3 importantly, that includes in-building usage.
4 Verizon Wireless keeps track of the busy-hour data,
5 the peak traffic on the network. Traditionally,
6 that peak network, until ten years ago, was
7 associated with drive-time busy hour and that
8 generated the peak usage on the cellular network.
9 When the wireless carriers put in -- included nights
10 and weekends and all-you-can-eat plans, that busy
11 hour started to peak up at 9:00 at night and we had
12 a second busy hour with just as much traffic as
13 drive-time busy hour. The volume of vehicular
14 traffic is significantly lower so most of that usage
15 is coming from in-building usage. To add to that,
16 the CDC keeps track of the figure of how many homes
17 and households only have wireless phones and wired
18 phones, and at this point in time, the United States
19 is between 35 and 37 percent of households only have
20 wireless phones, so there is a significant move now
21 that the wireless phone is your only phone, so it's
22 incumbent upon the wireless carriers, including
23 Verizon Wireless, to ensure that we have the
24 adequate signal, reliable network, to all devices in
25 all environments.

1 So this is -- the green shading
2 represents what we have today as far as reliable
3 service. As I said before, we utilize the drive --
4 we had drive test information from Verizon Wireless
5 that we used to tune this model and prepare the
6 report back in 2013. Several weeks ago, Verizon
7 Wireless conducted a second drive test and we're
8 able to duplicate the findings that we had in the
9 previous drive test report. So that's the
10 information I'd like to share with you showing that
11 the signal levels that we're seeing on this map are
12 representative of the actual signal levels that
13 we're seeing from the drive test.

14 Q. And the latest being just two weeks
15 ago?

16 A. Actually, four weeks ago. If we could
17 mark this as Exhibit A-16.

18 (Site map with two sets of data is marked as
19 Exhibit A-16.)

20 MR. STERN: With today's date on it.
21 There are two -- there are two sets of data. I'll
22 pass it down.

23 The first overlay -- the first map is
24 the CDMA 850 voice receive power. This data was
25 taken on March 14 of this year using the same

1 technique that I described with a computer, a
2 receiver and a GPS tracking.

3 On the right-hand side is a legend of
4 what the colored dots represent as far as signal
5 level, and the minus 80 signal are the three darker
6 blue dots. Anything better than minus 80 is darker
7 blue. The light blue and other colors represent
8 signals below the minus 80. So if I were to show
9 you a couple of points on the map... I apologize.
10 And what you find when you come up and actually look
11 at the topographic map --

12 CHAIRMAN JOHNSTONE: Hold on one
13 second. Sir?

14 MR. SIMON: Can I -- there's no mic
15 here but...

16 CHAIRMAN JOHNSTONE: What would you
17 like?

18 MR. BERNSTEIN: Speak loudly.

19 MR. SIMON: Thank you, Mr. Stern.

20 Rob Simon from Herold Law. I appeared
21 at the last hearing. For the benefit of the public,
22 the witness is testifying to an exhibit that no
23 member of the public has ever seen prior to this
24 second and that no member of the public is able to
25 currently see because it is not shown on a big

1 two-by-three board nor does it appear that there is
2 copies available for the public. So without even
3 looking at the content of the exhibit, we would like
4 to have the opportunity, if the witness has extra
5 copies for the audience --

6 MR. BERNSTEIN: For the record, there
7 are two, Rob, one for you and one for our residents.

8 MR. SIMON: Are there any extra copies
9 for the public?

10 CHAIRMAN JOHNSTONE: Here, take this
11 copy, I don't need it. Here are a couple more.

12 MR. BERNSTEIN: You'll have more than
13 the Board. Here's three more for deserving members
14 of the public.

15 MR. SIMON: It's not for me. The
16 public should have it.

17 (Mr. Bernstein and Mr. Larsen hand documents
18 out to the public.)

19 CHAIRMAN JOHNSTONE: Counsel, can I
20 ask you a question? Is there some reason why this
21 could not have been sent to us before tonight?

22 MR. MEESE: I hadn't seen it before
23 tonight myself.

24 CHAIRMAN JOHNSTONE: That's not the
25 point. I mean, this is not the first time -- this

1 is not your first dealing at the rodeo. Okay? We
2 told you right from the very beginning, if you're
3 going to be testifying about new information, you're
4 going to be producing documentation, it's got to be
5 in ten days ahead of time. You were told that. In
6 fact, the last letter you just got says the same
7 thing again and you, for some reason, keep deciding
8 to do it your own way and not respond to this.

9 Now, I'm going to tell you, this is the
10 last time this is going to happen because the next
11 time you do this, I will shut down the meeting and
12 we will not continue until everybody's had an
13 opportunity to see this stuff. I mean, it's not
14 fair. I've told you in the past, I told you in the
15 letter that you've seen, and I'm telling you again
16 tonight: If you have additional documents that
17 you're going to produce here at this hearing, have
18 the courtesy of getting it to us ten days ahead of
19 time. Even if you'd gotten it to us today by e-mail
20 or whatnot to Shana, we could have had copies made
21 for the public here tonight. I don't think it's
22 fair for you to come in here at the last moment, you
23 haven't been here since February, you had plenty of
24 time to get this information, and you could have had
25 this stuff here well before tonight at 8:00 at night

1 when, all of a sudden, he's producing a half dozen
2 or a dozen copies of this thing. Don't do it again
3 because if you do, I will stop the meeting. Do you
4 understand me?

5 MR. MEESE: Understand.

6 CHAIRMAN JOHNSTONE: Thank you.

7 BY MR. MEESE:

8 Q. Mr. Stern, the exhibit that's been
9 marked A-16, that's the drive test data from March
10 14?

11 A. Yes, it is.

12 Q. And that data is background data for
13 the exhibit that has been marked A-15.

14 A. That's correct.

15 Q. And the exhibit was contained in your
16 report from last December --

17 A. Yes.

18 Q. -- which was based on prior drive test
19 data. This new data is recent from this March.

20 A. That's correct.

21 Q. And it confirms the accuracy of both
22 the prior data as well as the accuracy of this map?

23 A. Yes, it does.

24 Q. And it identifies, based on actual
25 signal strengths, what areas within the township

1 fall below the neg 80 dB threshold that you're
2 looking for.

3 A. That's correct.

4 CHAIRMAN JOHNSTONE: Can I ask you a
5 question, because I'm confused. Is it the lower the
6 number meaning the weaker the frequency or is it the
7 higher the number that equals the weakness of the
8 frequency?

9 MR. STERN: It's a negative number so
10 the lower the negative number, so the higher the
11 digits, is worse signal.

12 CHAIRMAN JOHNSTONE: Okay, so to put
13 it in layman's terms negative 40 is worse than
14 negative 90 or is negative 90 worse than negative
15 40?

16 MR. STERN: Negative 90 is worse than
17 negative 40.

18 CHAIRMAN JOHNSTONE: Okay. That gives
19 everybody an understanding exactly what the numbers
20 mean. Okay, thank you.

21 MR. STERN: So the data here that I've
22 presented to you just basically supports the plot,
23 and I wanted to make sure I gave that support. We
24 had similar drive test data done previously, Verizon
25 provided new data to us, so I thought it best that

1 we provide the newest data showing that we still
2 have exactly the same measurements that we used in
3 order to tune the model. That was the only purpose
4 of the data, was to support it.

5 CHAIRMAN JOHNSTONE: I appreciate it.
6 The information you got, you got in March, I
7 understand that, and my concern was the fact we
8 didn't get it until May.

9 MR. STERN: And I apologize, that's my
10 fault.

11 CHAIRMAN JOHNSTONE: Well, you've had
12 the warning, I don't want to beat a dead horse,
13 let's move on.

14 MR. STERN: Okay.

15 So that is the information that I want
16 to provide for the drive test data.

17 There is a second piece of drive test
18 data in there that's from the 700-megahertz network
19 that also supports it but it is new information that
20 was not included in my report. It basically shows
21 the same issues but it's for the 700-megahertz
22 frequency.

23 CHAIRMAN JOHNSTONE: Is it the same
24 criteria?

25 MR. STERN: Actually, no, it's not the

1 same criteria, it's actually different criteria, so
2 it's new information.

3 CHAIRMAN JOHNSTONE: I guess what I'm
4 asking you, do the measurements go the same way as
5 the first one does?

6 MR. STERN: Yes, just a different
7 criteria.

8 CHAIRMAN JOHNSTONE: So, in other
9 words, the strongest signal is negative 20, the
10 weaker signal would be negative 120.

11 MR. STERN: Correct.

12 CHAIRMAN JOHNSTONE: Okay.

13 MEMBER OF THE PUBLIC: Excuse me.

14 MR. STERN: The 700 --

15 CHAIRMAN JOHNSTONE: Hold on. Yes.

16 MEMBER OF THE PUBLIC: What
17 application is the 700-megahertz channel used for?
18 Voice?

19 CHAIRMAN JOHNSTONE: Okay, okay. I
20 think she wants a clarification of what it means.

21 MR. STERN: That's actually a very
22 good question.

23 Currently, Verizon Wireless, on its
24 800-megahertz network, is providing voice service
25 and 1X data, the oldest level of data. They are

1 also providing 3G data on the 700-megahertz and PCS
2 networks, that's the 1900 megahertz. They are
3 providing 4G service -- that's data only -- on the
4 700-megahertz network. The second carrier of 4G
5 will be on the AWS spectrum, which is the 2100
6 megahertz. The third 4G channel will be on the PCS
7 network. I should point out that PCS signals travel
8 less -- they travel less than the 700 and 800
9 megahertz signal, so actually, the PCS coverage is
10 worse than this by several dB. So it's actually,
11 for the PCS network, there's more white on this map
12 than there is at 800 megahertz.

13 So the answer to the question, the 700
14 megahertz is currently the 4G, and why is that
15 important? When we're talking about Verizon voice
16 network, we've been providing the voice network now
17 for 30 years. Over that time, we started out with
18 the analog voice that we could put on about 45 calls
19 per cell site. With a migration to 2G, we were able
20 to get it up to 900 calls on a cell site. As we
21 packed more and more traffic onto a cell site, we've
22 ramped up the different technologies, we've ramped
23 up the amount of bits per hertz that we could put
24 out over the network, and now we've upgraded that
25 even more with the 4G technology. Over the next two

1 years, Verizon Wireless will be converting over all
2 of its existing 1X and EVDO voice network to 4G
3 voice-over LTE network, so what we're using today as
4 a data-only network, that will become the voice
5 network of the future over the next two years. Many
6 people have cable phones at the house where they
7 usually have a Verizon or a United Telespectrum
8 phone at the house from the landline. Now that
9 they've got the cable, the cable company can provide
10 voice-over IP. This is the same implementation of
11 using the IP data network on the Verizon 4G network
12 to provide voice.

13 So as I said, over the next couple of
14 years, Verizon will be incenting (sic) subscribers
15 and providing devices that will migrate over from
16 the traditional CDMA network, 2G network voice to 4G
17 voice, voice-over LTE. So that will be the way the
18 networks are going. So we will be converting over
19 all of our spectrum to 4G LTE, so it's important to
20 understand that the signals that we're looking for
21 will be a new set of signals. The traditional minus
22 80 dBm signal will be a little bit different
23 because, at minus 80 dBm on the CDMA network, we're
24 looking to spread that over a small channel, a 1.25-
25 megahertz channel. At 4G, we're spreading that

1 power, that same power, over a much bigger channel
2 so the signal level drops. It doesn't mean the
3 coverage is less, it just means when you measure it,
4 it's a different signal level when you're measuring
5 it even though it's coming from the same
6 transmitter, the same antennas. So you'll hear
7 numbers that are closer to between minus 90 and
8 minus 100 dBm, a lower signal that could be used for
9 the 4G data network, so that was the purpose of the
10 700 megahertz, is knowing "This is what we're going
11 to be coming with in the future when we talk about
12 coverage and what we need and what we're measuring."

13 So that was the purpose of just showing
14 the information, is that the current 4G network has
15 exactly -- almost identical footprint to the 2G
16 footprint that I'm showing you here, just supporting
17 the fact that this particular chart represents both
18 the 2G and the 4G network serving the central
19 portion of Tewksbury Township.

20 Q. Now, Mr. Stern, on the map, I see that
21 there's areas where you have the reliable coverage
22 interspersed with areas where you do not. Can you
23 explain the reasons for that and why it's not, like,
24 a uniform coverage footprint?

25 A. Sure. The coverage difference, when

1 we use the coverage model and the signals, the
2 signals, in this part of New Jersey, they really
3 follow the topographic features, so when you're at
4 the top of a hill, you have much better signal
5 levels than what you have at the bottom of the hill
6 and down in one of the valleys, and when you look at
7 the topographic map and come up here and look at
8 where the green shading is here, it's mostly the
9 peaks that are getting covered, and the areas
10 between the peaks, the valleys and the low-lying
11 areas don't have service. In this part of Tewksbury
12 Township, it's really the terrain that dominates
13 where you see -- where you have coverage and where
14 you don't. It is a line-of-sight technology, to a
15 certain extent. The model itself takes into account
16 the same factors that impede radio frequency in the
17 real world. We use the terrain, we use morphology,
18 which would be land use, trees, open fields, water,
19 buildings and dense areas are all taken into account
20 to do this, along with the antenna site parameters,
21 the antennas, the height above terrain, and the
22 power and the orientation and the shape and size of
23 the antennas all go into making this simulation.

24 Just so we, you know, for reference,
25 the area that we're focused on is a two-mile to

1 two-and-a-half mile east to west and one-and-a-half
2 to -- one to one-and-a-half miles north to south
3 that we're trying to fill. The gap in coverage
4 includes Old Turnpike -- one mile of Old Turnpike,
5 one mile of King Street, leaving the center of the
6 Oldwick area, one and a quarter miles of Hill and
7 Dale; four, the road known as Rockaway Road coming
8 out from between Hill and Dale and Old Turnpike --
9 and, excuse me, King Street, as well as Bissell Road
10 off of the other side of Roundtop, and that's a mile
11 and a quarter of Bissell Road. In addition, we have
12 the extension of King Street, which is Church Street
13 and Willett Road going up, that's a mile and a
14 quarter, as well as two miles of Homestead Road
15 coming up out of Old Turnpike as well as Flint Hill
16 Road north of there and the smaller roads between
17 Homestead and Church Street in the area to the east
18 of Old Turnpike. So all those areas are what we're
19 focused on for this site.

20 Q. And you also then modeled what would
21 happen if this Board approved the application and
22 Verizon Wireless were to construct a site -- or an
23 antenna facility on this site?

24 A. Yes, I did.

25 Q. And is that represented on a different

1 exhibit?

2 A. Yes, it is.

3 Q. Why don't we mark that A-17.

4 A. Yup.

5 MR. MEESE: Excuse me, that would be
6 A-18, I believe?

7 MS. GOODCHILD: A-18.

8 MR. STERN: A-17.

9 MR. MEESE: Oh, I'm sorry, A-17.

10 CHAIRMAN JOHNSTONE: You're referring
11 to Map 2?

12 MR. STERN: I am referring to Map 2.

13 CHAIRMAN JOHNSTONE: For everyone in
14 the audience, that's Page 8 of the report.

15 (Map 2, entitled "Cellco Partnership D/B/A
16 Verizon Wireless, Oldwick, NJ, Existing Sites with
17 the Oldwick Site," is marked as Exhibit A-17.)

18 A. Map 2 is entitled "Cellco Partnership
19 D/B/A Verizon Wireless Oldwick NJ Existing Sites
20 with the Oldwick site."

21 What we've done now is we've
22 propagated, using the radio frequency tool, the
23 energy from the proposed location of Melick Farm
24 with the center of the antennas at 120 feet above
25 ground level and filled in the gap in service that I

1 described in here (indicating). As I said before,
2 it's a line-of-sight technology. If it doesn't see
3 it, it's probably not going to cover it, so it
4 really fills in the area to the north up and down
5 Old Turnpike and up and down King Street and back up
6 to church, the smaller roads in there, and it fills
7 in Hill and Dale until Hill and Dale falls around
8 Roundtop because the signal can't get over Roundtop,
9 and we also cover Oldwick Turnpike until the gap,
10 just about a mile and a quarter north of town.
11 Where the road takes a sharp bend through the hills
12 in that valley there, the signal would not get all
13 the way up into that valley. So, using the
14 120-foot, that is the minimum height that we would
15 need to fill in those gaps in coverage in this area.

16 Q. And with respect to the Verizon
17 Wireless signals, do you have any concern with any
18 interference that may result from the introduction
19 of this site in this location?

20 A. No, no concern for interference to
21 other electronic devices or public safety agencies
22 or other wireless carriers in this area.

23 Q. Now, when this site was selected, did
24 you analyze to determine whether there were any
25 existing structures that could be utilized to

1 provide this coverage rather than constructing a new
2 tower?

3 A. Yes, we did an analysis of the
4 structures in this part of the township as well as
5 evaluated -- we reviewed the evaluation done by
6 Verizon Wireless and acted on by Verizon Wireless to
7 other locations for a new tall structure, so we
8 looked at both the existing structures as well as
9 locations for a new tall structure.

10 Q. Okay. Could you review what some of
11 those other locations were that you looked at?

12 A. Let's focus first on the taller
13 structures. The taller structures in town are a
14 series of power electrical transmission towers, and
15 I'm going to point over to them now. They come over
16 by Hill and Dale just north of Roundtop and then
17 they cross over Hill and Dale and then go over to
18 that valley I described before where Old Turnpike
19 rounds to the valley here (indicating). So I'm
20 showing on the map where this power line comes
21 through north and south to Hill and Dale and that's
22 about a mile from Old Turnpike where those towers
23 are located. And we actually evaluated six towers,
24 we've reviewed this evaluation multiple times. I'll
25 talk about each one of them.

1 Tower No. 12/4 is the tower south of
2 Hill and Dale. The ground elevation of this tower
3 is 335 feet. The tower is basically down into the
4 valley and would not see above the terrain in that
5 area, so this tower was rejected by Verizon
6 Wireless.

7 The next tower up is Tower No. 13/1,
8 and if you go actually up to one of the -- if you
9 actually go to those towers, you actually will find
10 a label on those towers that tells you what the
11 tower number is, so we're now looking at Tower No.
12 13/1. This is a tower just north of Hill and Dale.
13 This tower is at 517 feet ground elevation. The
14 tower was actually -- when this search area was
15 first issued, this tower was approved to install
16 antennas on. Verizon Wireless attempted, on
17 multiple occasions, to contact the owner of the
18 underlying property because not only do we need an
19 agreement with PSE&G, we need an agreement with the
20 underlying property to attach our antennas and put
21 in an equipment shelter. The owners did not respond
22 to multiple communications and I actually have
23 copies of the certified mail. There's two of those,
24 two of those. Two of those communications.

25 MR. BERNSTEIN: Wait, if you're going

1 to submit them, they should be marked as the next
2 exhibit.

3 Were these letters you sent or someone
4 else sent?

5 MR. STERN: This was sent by one of
6 the site acquisition consultants to the landowners,
7 certified with return receipt requested.

8 MR. BERNSTEIN: Okay, I guess it would
9 be your call, Mr. Chairman, as to --

10 MR. MEESE: If necessary, we could
11 certainly bring in the site acquisition consultant
12 to say that he did send --

13 CHAIRMAN JOHNSTONE: Let's just get
14 them marked right now.

15 MR. BERNSTEIN: Okay, we'll mark it.
16 Is that A-18?

17 MS. GOODCHILD: Yes.

18 MR. STERN: A-18 and A-19 or just one?

19 MR. BERNSTEIN: Tell me, there's --

20 MR. STERN: There's two letters.

21 MR. BERNSTEIN: A-18 and A-19.

22 (Letter dated 7/7/09 and letter dated 9/28/09
23 are marked as Exhibits A-18 and A-19.)

24 MR. STERN: And these are two
25 certified letters sent July the 7th, 2009, September

1 28th, 2009, to Lawrence and Barbara Pinzur, 22 Hill
2 and Dale Road.

3 MR. BERNSTEIN: 2009?

4 MR. STERN: Yes.

5 MR. BERNSTEIN: Nothing later that was
6 sent, to your knowledge?

7 MR. STERN: That is what I have been
8 given as the attempt to get to them and find out.
9 Now, I do want to talk about --

10 MR. BERNSTEIN: One is -- I'm sorry,
11 one is 2009, one is 2010?

12 MR. STERN: No, they're both 2009.

13 MR. BERNSTEIN: The one letter says
14 2010.

15 MR. STERN: Okay, then I stand
16 corrected.

17 CHAIRMAN JOHNSTONE: So we understand
18 correctly, there has been no communication with the
19 homeowners at the location in question since 2010;
20 is that correct?

21 MR. STERN: That's correct.

22 CHAIRMAN JOHNSTONE: So we're now in
23 2014, so there's been a four-year hiatus of
24 communication with those people?

25 MR. STERN: Yes. What I also would

1 like to share with you are two photographs of --

2 MR. BERNSTEIN: Do you want them
3 entered into evidence?

4 MR. STERN: Yeah.

5 MR. BERNSTEIN: Then they would be
6 A-20 and A-21.

7 (Photographs are marked as Exhibits A-20 and
8 A-21.)

9 MR. BERNSTEIN: Do you want to tell us
10 who took the photos?

11 MR. STERN: One of the photos is taken
12 from Bing Maps.

13 MR. BERNSTEIN: Who took it?

14 MR. STERN: It's from the software
15 Bing.

16 MR. BERNSTEIN: No, I understand, but
17 you're saying one person --

18 MR. STERN: It was taken off of a
19 software.

20 MR. BERNSTEIN: Okay, but who took it
21 off of the --

22 MR. STERN: Eric -- the person who
23 sent those letters, Mr. Eric Pastnacht.

24 MR. BERNSTEIN: He took this one off
25 of --

1 MR. STERN: He took the one off of --
2 you can see the website here, Bing.

3 MR. BERNSTEIN: And which one is that,
4 A-20 or A-21?

5 MR. STERN: A-21. And A-20 was taken
6 by Mr. Pastnacht in that time frame of --

7 CHAIRMAN JOHNSTONE: Can I hold you up
8 for one second?

9 MR. STERN: Sure.

10 CHAIRMAN JOHNSTONE: Is there anyone
11 in the audience who's interested in knowing what
12 these letters say?

13 MEMBERS OF THE PUBLIC: Yes.

14 CHAIRMAN JOHNSTONE: Okay, that's what
15 I thought. I'm going to read them for the record.
16 I'll pass them down, I'll let them go to the public,
17 just understand I want them back up here.

18 "Dear Mr. and Mrs. Pinzur:

19 FastCom Consulting Services is a
20 consulting firm that represents Verizon Wireless in
21 the New Jersey market. Verizon Wireless seeks to
22 provide mobile phone coverage to Tewksbury. We have
23 identified your property, located at 22 Hill and
24 Dale Road (Block 27, Lot 147.02) because there is an
25 existing PSE&G tower on the property. Verizon seeks

1 to lease ground space from you for the purposes of
2 placing their equipment shelter next to the existing
3 transmission tower. Verizon will also have to enter
4 into a lease agreement with PSE&G in order to locate
5 their antennas at the top of the tower. The amount
6 of space that Verizon would need to lease from you
7 is approximately 300 square feet of space next to
8 the tower. Verizon does require a 15' wide access
9 road leading up to the tower which might already
10 exist. Within this 15' easement we run power and
11 telephone so the site can be operational. The
12 easement will also serve as our way to access the
13 site once it has been constructed. After the
14 initial construction phase is complete you might see
15 a technician at the site once or twice a month.

16 The standard Verizon Wireless re --
17 lease," not 'release' but 'lease,' "is a long-term
18 one, with the initial term of five years, and three
19 consecutive renewal terms of five years each, for a
20 total of twenty years. In this area, we currently
21 offer for this small amount of space a monthly
22 rental of \$900.00 per month or \$10,800 a year with
23 15% per-term increases.

24 If you are interested, the next step is
25 to schedule a visit to the property so I can take

1 pictures of the tower and determine the viability of
2 the site" and then it gives a phone number and it's
3 signed by Eric Pastnacht, P-A-S-T-N-A-C-H-T,
4 Managing Member of FastCom Consulting.

5 MR. BERNSTEIN: Could you just give a
6 date for that letter?

7 CHAIRMAN JOHNSTONE: Yes, I can. July
8 7, 2009, and the second one is September 28, 2009,
9 which says the same thing.

10 MS. GOODCHILD: 2010.

11 MR. BERNSTEIN: 10.

12 CHAIRMAN JOHNSTONE: 10. 2010, pardon
13 me. And separate lease, it's rental, 1,000 per
14 month or 12,000 per year so they upped their ante.
15 And if you keep waiting, I guess it keeps going up.

16 All right, I'll pass this around, and
17 after the last one down there gets it, just pass it
18 over to the public.

19 MR. STERN: A-20 and A-21 basically
20 just show this particular property. I wanted to
21 just highlight, A-21 is taken from Bing, the Bing
22 software, in the bird's-eye view. The property with
23 the arrow is the property in question. The tower,
24 also, I put an arrow.

25 CHAIRMAN JOHNSTONE: Um-hum.

1 MR. STERN: The view from Hill and
2 Dale of the property shows the tower up above.

3 CHAIRMAN JOHNSTONE: Yeah, I see it.

4 MR. STERN: The issue I want to point
5 out is that --

6 CHAIRMAN JOHNSTONE: Why don't you put
7 a star next to it so then they can identify it.

8 (Mr. Stern complies.)

9 CHAIRMAN JOHNSTONE: Okay.

10 MR. STERN: The only information I
11 want to do is that -- I don't know if it would be
12 feasible to build this site but I thought I'd share
13 that information just so you have a view of what
14 that tower would represent and what the build -- the
15 build process to get to that location would require
16 a significant removal of a lot of trees and building
17 an access road of a -- I believe it's like a 30- or
18 40-foot hill. It's more than a hill.

19 All right, so that talks about 13/1.
20 Tower No. 13/2, which is just the next tower north
21 of 13/1, was actually rejected for several reasons.
22 First, it was rejected because it was too high above
23 the area. The terrain is climbing in that area and
24 what we found was that the antenna height that we
25 would get, which would be the top of -- if PSE&G

1 would approve it, and in fact, they -- when we went
2 to them and inquired about it in the 2009/2010 time
3 frame, they said they would not allow the structural
4 modifications of that tower to put antennas on top
5 of there.

6 CHAIRMAN JOHNSTONE: Did you ask them
7 about --

8 MR. STERN: We asked.

9 CHAIRMAN JOHNSTONE: -- any of the
10 towers?

11 MR. STERN: Hmm?

12 CHAIRMAN JOHNSTONE: Did they give you
13 permission for any of the towers?

14 MR. STERN: They gave us permission
15 for several of the towers, not this one. However,
16 underlying landowners did not give us permission for
17 the other towers. When we talk about 13/2, we had
18 permission from -- the underlying landlord was
19 willing to allow us there; PSE&G said they would not
20 allow the structural modifications to be done on
21 this tower. The other problem with this tower and
22 the next tower, 13/3, is just the height. There's
23 several other issues with PSE&G towers that we're
24 dealing with now on the current network that we
25 weren't dealing with in 2010 but we're dealing with

1 it now. But the first issue that came up is that
2 the antenna centerline above the top of the tower,
3 we can only now mount above the wires and below the
4 wires, so you have to be either completely below the
5 wires or completely above the wires. There are
6 certain towers where you have three or four levels
7 of wires, you have to be either down about 50 or 60
8 feet or up above the top of the tower. In this
9 case, the antenna centerline, where we calculate
10 where the coverage would come from these antennas,
11 is 200 feet higher than the proposed height above
12 sea level of our proposed location at Melick Farm.
13 What that means is it's 20 stories higher just a
14 mile and a quarter away. What this means for the
15 Verizon Wireless network is significant
16 interference. It's just -- it's too high above the
17 area. So even if we could get the permission of
18 PSE&G to go on this site --

19 CHAIRMAN JOHNSTONE: "This site"
20 referring to 13/2?

21 MR. STERN: It's actually 13/2 and
22 13/3, which are the next two sites.

23 Their elevation -- what happens now is,
24 if you were to look at the ground elevation at the
25 center of Oldwick, which is about 240 feet, and

1 Interstate 78, which is about 195 feet, and the area
2 to the west -- excuse me, to the east of this area,
3 which is between here and Bedminster and Branchburg,
4 it's about 200, 210 feet, so you're talking -- the
5 average height is like 400 feet above, so you're
6 basically putting your antennas on a 40-story
7 building and trying to contain that coverage, and
8 there is nothing to contain that coverage from these
9 two transmission towers to go back out into the
10 area.

11 For the 4G network, the LTE network,
12 this type of energy doesn't provide an additive
13 positive, it's an additive negative. It actually
14 increases the noise, increases bit errors on the
15 network, and actually shrinks the coverage of the
16 sites that are being interfered with, so they
17 actually shrink up because they have less -- they
18 have to have more power to overcome the interference
19 caused by this site.

20 The way that these new digital
21 technologies work is we reuse the same radio channel
22 at every site. Thirty years ago when we introduced
23 analog, we actually assigned the channels per site
24 and we didn't reuse them, we just had to frequency
25 plan them so that they would work properly. With

1 the new digital technologies, we use the same radio
2 frequency at every location.

3 With the original CDMA technology, we
4 were able to take advantage of overlap between sites
5 and that was actually a good thing, it was an
6 additive thing, so overlap between sites was good.
7 With the 4G LTE technology, too much overlap is
8 really bad, and as I said, it's a negative impact
9 and it impacts coverage significantly.

10 This is the same issue with 13/3,
11 although 13/3, the landowner was not interested, and
12 the next tower's 13/4, it's actually back on the
13 other side of the hill going towards -- going
14 towards Old Turnpike and that curve. So those were
15 the five towers we looked at, and at that point,
16 after going through those towers, and we spent the
17 better part of a year going through this and trying
18 to get one of these towers to work --

19 CHAIRMAN JOHNSTONE: Can I ask you a
20 question right there, sir?

21 THE WITNESS: Yes.

22 CHAIRMAN JOHNSTONE: Mr. Stern, if I
23 understand correctly, you're telling me that Tower
24 12/4 is too low, you're telling me Tower 13/2 is too
25 high --

1 MR. STERN: Yup.

2 CHAIRMAN JOHNSTONE: -- you're telling
3 me that Tower 13/13 is too high, and you're telling
4 me that Tower 13/4 is blocked because of the fact
5 that it's in the valley of where 517 cuts through;
6 is that correct?

7 MR. STERN: That's correct.

8 CHAIRMAN JOHNSTONE: And I gather
9 you're telling me that Tower 13/1 is just right but
10 you can't get permission from the owner.

11 MR. STERN: It is, and I'll tell you,
12 the ground elevation climbs from 13 -- excuse me,
13 from 12/4 to 13/1, the ground elevation climbs 270
14 feet. So there's a significant -- 280 feet.

15 CHAIRMAN JOHNSTONE: No, what I'm
16 getting at is you told me, or told us --

17 MR. STERN: Yes.

18 CHAIRMAN JOHNSTONE: -- 13/1 was an
19 approved site by Verizon.

20 MR. STERN: Yes.

21 CHAIRMAN JOHNSTONE: Unfortunately,
22 you claim that you could not get a hold of the
23 landowner to give you access to it, although, if I
24 understand correctly, you had permission from PSE&G;
25 is that correct?

1 MR. STERN: We -- when we contacted
2 PSE&G, they said they would consider it. There's a
3 whole process you go through to get on these things.

4 CHAIRMAN JOHNSTONE: Okay.

5 MR. STERN: There's one other cog in
6 this wheel now. PSE&G has issued a letter to the
7 wireless carriers that one of the devices that the
8 wireless carriers are now deploying in most of their
9 networks, which is a remote radio head, what that
10 allows us to do is put more of the brains of the
11 cell site and the radio gear up on the tower, up on
12 the tall structure. That improves our capabilities
13 on the system. It gives us more coverage, it gives
14 us a little bit better performance out of what we're
15 given. What PSE&G said is they will not allow us to
16 put remote radio heads on these towers. Especially
17 for the PCS and AWS frequencies, the 2 gigahertz,
18 they're saying "You can't use those devices on the
19 towers." So if we do use a PSE&G tower, it is not
20 -- it is not as optimal an installation as it should
21 be. I'm just -- that's just a point of fact, it's
22 not --

23 CHAIRMAN JOHNSTONE: Okay. As I said,
24 I just wanted to get --

25 MR. STERN: Yup.

1 CHAIRMAN JOHNSTONE: I'll ask some
2 follow-up questions later --

3 MR. STERN: Okay.

4 CHAIRMAN JOHNSTONE: -- but I just
5 wanted to make sure I was clear about what you had
6 to say about these towers and you answered my
7 question. Thank you. Didn't mean to interrupt.

8 MR. LARSEN: Mr. Chairman, both the
9 letters and the pictures came up.

10 CHAIRMAN JOHNSTONE: Yeah. Whoever
11 the last one is in the public, just make sure you
12 bring it back up here. Thank you.

13 MR. STERN: Following our work to try
14 to get on one of these PSE&G towers, we investigated
15 several properties around the town to locate besides
16 Melick Farm. The first site that we had entered
17 into discussions with is the Oldwick Volunteer Fire
18 Company at 160 Oldwick Road. We actually were
19 pursuing this very strongly to build a new tall
20 structure at the fire company and, however, there
21 was a deed restriction on the property and Tewksbury
22 Township Council voted to deny Verizon Wireless to
23 go at this location.

24 The second place we looked at was just
25 south of our property, which is Stavola Quarry. It

1 would be basically up at the same location, just on
2 the Stavola side of the property line. At this
3 point, Stavola was not interested in working with
4 Verizon Wireless.

5 MR. BERNSTEIN: What was the date of
6 Stavola -- and do you have a letter like you had for
7 the others?

8 MR. STERN: No, I don't.

9 MR. BERNSTEIN: So it was someone else
10 who discussed it with Stavola?

11 MR. STERN: Yes.

12 MR. BERNSTEIN: Not you.

13 MR. STERN: Not me.

14 MR. BERNSTEIN: Okay, so someone told
15 you that they discussed it with someone else, right?

16 MR. STERN: Yes.

17 MR. BERNSTEIN: Who is the someone
18 that told you?

19 MR. STERN: This was the Verizon
20 Wireless engineers that worked on this.

21 MR. BERNSTEIN: No, but which person
22 told you that he spoke with someone who said --

23 MR. STERN: I have third-party
24 information and he --

25 MR. BERNSTEIN: Right. Who's the

1 third party?

2 MR. STERN: I don't remember who told
3 me.

4 MR. BERNSTEIN: Okay, fine. You can
5 continue.

6 MR. STERN: The last location that we
7 investigated was the Julian Gage Home Collections at
8 43 Old Turnpike. That's the former church building
9 right in the center of, I'll call it "downtown area"
10 of Oldwick, and we found that this location would be
11 too short to fill in the gap in coverage for Verizon
12 Wireless. Replacing the steeple with a faux
13 steeple, it would be too short to serve in the gap
14 in coverage.

15 MR. BERNSTEIN: Do you have the
16 numbers, like how tall that has to be and how tall
17 would it have been?

18 MR. STERN: It would be --

19 MR. BERNSTEIN: If you have it.

20 MR. STERN: I don't have the specific
21 numbers --

22 MR. BERNSTEIN: That was the question.

23 MR. STERN: -- because it was not
24 trying to change the height, it was using the
25 existing height, just replacing it with a faux

1 church steeple.

2 MR. BERNSTEIN: Could it have been
3 higher and reached the appropriate level?

4 MR. STERN: We did not investigate
5 that --

6 MR. BERNSTEIN: Okay.

7 MR. STERN: -- because that would
8 require a full structural investigation of the whole
9 building whether or not it could support additional
10 height.

11 MR. BERNSTEIN: Well, if it was a faux
12 tower, I assume it would support it, but you didn't
13 look into it.

14 MR. STERN: No, we didn't look into
15 it. We looked at replacing like for like and it
16 would be too short.

17 MR. BERNSTEIN: Was that you who
18 looked into it or someone else?

19 MR. STERN: Somebody else from Verizon
20 Wireless looked into it.

21 MR. BERNSTEIN: Okay, and he told you.

22 MR. STERN: Yes.

23 MR. BERNSTEIN: Okay. You can
24 continue.

25 BY MR. MEESE:

1 Q. Mr. Stern, in conclusion, based upon
2 your analysis of the existing coverage that exists
3 in Tewksbury Township as well as your analysis of
4 the available existing structures, you believe that
5 a new facility must be constructed?

6 A. Yes.

7 Q. And based upon your analysis, a new
8 facility at the subject site at a height of 120 feet
9 would be a reasonable -- would elicit a reasonable
10 coverage to fill in the existing gap in coverage?

11 A. Yes.

12 MR. MEESE: Thank you. I don't have
13 any further questions of Mr. Stern at this time.

14 MR. STERN: I had one more point I
15 wanted to make.

16 MR. MEESE: Okay.

17 MR. STERN: Just for reference, we
18 still have some white areas in the township. They
19 are future search areas that they will be working
20 on. They've actually been open almost a similar
21 amount of time. I don't have -- we don't have any
22 candidates for these sites right now and I don't
23 know when we'll be back.

24 The first location is in the
25 Pottersville section at the corner of the township

1 and the second location is known as the
2 Mountainville section to the west of the Fairmont --
3 power towers in Fairmont, down at the bottom of
4 there. There's a significant gap. I've been
5 through that area and have absolutely no service
6 whatsoever on my phone, so besides the drive test
7 data that supports it, I've been through that area
8 on the various times that I've gone to other
9 locations for zoning hearings and there's no service
10 in that area as well. But those are the future
11 search areas for Tewksbury Township.

12 CHAIRMAN JOHNSTONE: Okay, are you
13 finished with your testimony?

14 MR. STERN: Yes.

15 CHAIRMAN JOHNSTONE: Would you like a
16 couple minutes to get a drink of water and whatnot?

17 MR. STERN: Yes.

18 CHAIRMAN JOHNSTONE: Okay. We'll take
19 a five-minute break. It's now 20 of; we'll come
20 back here a quarter of.

21 (Recess taken)

22 CHAIRMAN JOHNSTONE: Now, we're back
23 in session. First of all, the documents that we
24 sent out to the audience, where are they? We're not
25 going any further till we get them back. Where are

1 they?

2 (Member of public holds documents up.)

3 CHAIRMAN JOHNSTONE: A-ha.

4 MR. BERNSTEIN: No, no, bring them
5 back.

6 MS. GOODCHILD: Are they done with
7 them?

8 CHAIRMAN JOHNSTONE: Are you done with
9 them or no?

10 MEMBER OF THE PUBLIC: No.

11 CHAIRMAN JOHNSTONE: Okay, then I'll
12 leave this side of the room responsible. If we
13 don't get them back, you cannot leave tonight.
14 Okay?

15 All right? All right, we're done with
16 the testimony, the direct testimony. We'll now
17 start with questioning. I'll start with our experts
18 down at the far end of the table. We'll start with
19 the first two down there. Okay? So why don't we
20 get started, gentlemen.

21 MR. MCGROARTY: Mr. Chairman, one
22 question.

23 You had mentioned the Julian Gage Home,
24 the steeple would be too small? Or too short.

25 MR. STERN: Too short.

1 MR. MCGROARTY: Did you tell us by how
2 many feet?

3 MR. STERN: No, I did not.

4 MR. MCGROARTY: Do you know?

5 MR. STERN: No, I do not.

6 MR. MCGROARTY: Okay.

7 CHAIRMAN JOHNSTONE: Any other
8 questions?

9 MR. MCGROARTY: No. Thank you, Mr.
10 Chairman.

11 CHAIRMAN JOHNSTONE: Okay. Go ahead,
12 Bill.

13 MR. BURR: Two quick questions, the
14 first one referring to your RF report that you had
15 submitted. The initial report that came with the
16 application was dated June of 2013?

17 MR. STERN: Yes.

18 MR. BURR: Then you revised your
19 report to December 2013.

20 MR. STERN: Yes.

21 MR. BURR: In looking at the coverage
22 maps between the two reports, there's drastic
23 differences.

24 MR. STERN: Yes.

25 MR. BURR: Can you explain why that

1 is?

2 MR. STERN: There was a significant
3 error in the software and in the data that was input
4 in the software and it did not -- did not go through
5 my quality check before it was issued.

6 MR. BURR: So the original report was
7 in error.

8 MR. STERN: Very much in error.

9 MR. BURR: Okay. All right, thank
10 you.

11 The final question is: We hear about
12 these alternative technologies, these small-cell
13 technologies.

14 MR. STERN: Um-hum.

15 MR. BURR: Can you explain them to the
16 Board and to the public --

17 MR. STERN: Sure.

18 MR. BURR: -- and whether anything
19 like that would be viable on a project like this?

20 MR. STERN: Sure. The small-cell
21 technology and the -- Verizon is actually deploying
22 a small-cell technology in other locations
23 throughout New Jersey right now. The term "small
24 cell technology" refers to a very small base
25 station. This base station is approximately the

1 size of a refrigerator, smaller antennas. Where we
2 deploy these are on high-traffic venues to provide
3 additional capacity into a given network, into a
4 given part of our network. There isn't a coverage
5 problem in that area, there is a capacity issue, so
6 we've been dropping these in in different locations.
7 We're working on several on Route 22 in Union
8 County, Route 18 in Middlesex County. These sites
9 actually cover about a thousand feet from its
10 coverage. They still require the same land use
11 approval, they require a power telephone, backup
12 power. They're just a smaller footprint of a device
13 but they're really designed to cover a very small
14 area to provide additional capacity.

15 There is another technology that has
16 been used, a distributive antenna system, it's a DAS
17 system, using either fiber or standalone nodes that
18 you would run fiber using existing telephone poles,
19 utility poles, to try to provide coverage. It
20 requires the installation of a head-in base station
21 at some location and then running fiber up and down
22 utility poles. It is a technology that really is
23 suited for dense suburban areas where I have a
24 significant amount of utility poles to have access
25 to and the distance between what you're trying to

1 serve and utility pole is very small. These are
2 really low-power units, they cover less than
3 hundreds of feet, they are not designed to use in
4 big rural areas because you don't have roads with
5 utility poles running through all the rural areas,
6 especially in areas where they may have all
7 underground utilities, you'd have access to no tall
8 structures within the area.

9 CHAIRMAN JOHNSTONE: Let me stop you
10 right there.

11 MR. STERN: Yes.

12 CHAIRMAN JOHNSTONE: In the areas that
13 you're talking about, specifically Hill and Dale
14 Road and specifically 517, you do have poles, you
15 have telephone poles all along those areas. You
16 have electrical line poles along those areas. Why
17 would they not be useful there?

18 MR. STERN: They would be useful along
19 just those major arteries, not --

20 CHAIRMAN JOHNSTONE: Those are the
21 areas that you're trying to cover with your tower.

22 MR. STERN: I'm trying to cover all of
23 the areas in there. This site is designed to cover
24 not only all the roads but all of the areas in
25 between those roads and to cover the homes in

1 between those roads.

2 CHAIRMAN JOHNSTONE: Well, I'm not
3 disagreeing with you; the point I'm trying to make
4 is, isn't that the same technology on the side on
5 the roads the same whether it's in the urban areas
6 or in the rural areas?

7 MR. STERN: Right, but what you get
8 are ribbons of coverage along the road as opposed to
9 a wide -- you could refer to A-17. As opposed to a
10 wide coverage area blanketing the area with
11 coverage, what I get are ribbons of coverage just
12 along the roads. If the house is set back from the
13 road 200 feet, I'm not going to cover inside that
14 house. So it's a -- where we've been using this
15 technology and the place that I actually worked on
16 the design was in Staten Island where it was laid
17 out in a grid where you had dense, packed suburban
18 area where I could get -- you know, put a site every
19 block, every other block, and I could get the whole
20 area because I was less than a couple hundred feet
21 from --

22 CHAIRMAN JOHNSTONE: Let me put it
23 this way. Did you look into these technologies in
24 your analysis that you prepared, you know, in regard
25 to your report tonight?

1 MR. STERN: I did not specifically
2 look at this technology for this area because it's
3 usually -- it's not applicable for this type of an
4 area. I need too many nodes and finding all of the
5 structures that I need to attach to is nearly
6 impossible. There just aren't enough of these --
7 there aren't enough of the structures where I need
8 them in order to provide the dense -- the -- let me
9 rephrase that -- to provide the overlay coverage
10 that I need to fill in all the gap in coverages in
11 here.

12 CHAIRMAN JOHNSTONE: Mr. Stern, in the
13 areas I'm talking about, along King Street, along
14 517, along Hill and Dale Road, did you ever take the
15 time to analyze whether or not there are sufficient
16 poles, telephone poles, to allow you to use the
17 small-cell technology you're talking about?

18 MR. STERN: No, I did not.

19 CHAIRMAN JOHNSTONE: You did not.

20 MR. STERN: No.

21 CHAIRMAN JOHNSTONE: Okay, thank you.
22 I'm sorry, I didn't mean to interrupt you in your
23 questioning. Go ahead.

24 MR. BURR: I'm done, thank you.

25 CHAIRMAN JOHNSTONE: Okay. Next?

1 MR. MENKES: Yes, Mr. Stern, I have a
2 number of questions --

3 CHAIRMAN JOHNSTONE: Do you have his
4 name, by the way?

5 COURT REPORTER: Yes, I do.

6 CHAIRMAN JOHNSTONE: Thank you.

7 MR. MENKES: I have a number of
8 questions, as you can imagine.

9 CHAIRMAN JOHNSTONE: You have to speak
10 up.

11 (Chairman Johnstone hands Mr. Menkes a
12 microphone.)

13 MR. MENKES: Is that better?

14 CHAIRMAN JOHNSTONE: Yes.

15 MR. MENKES: Okay. Mr. Stern, as you
16 might imagine, I have a number of questions.

17 I'm a little bit confused, I hate to
18 admit it, it doesn't sound very professional, but
19 the fact is, I am, from your earlier presentation,
20 because the truth is, I can't figure out what I'm
21 looking at now in your plots and with this data so
22 I'd like to ask you some questions so that the plots
23 are better understood.

24 First of all, in your report, you
25 primarily discuss 4G LTE. Is Verizon proposing to

1 put 3G in this cell site?

2 MR. STERN: No.

3 MR. MENKES: Verizon will put no 3G
4 CDMA service in this cell site.

5 MR. STERN: No. They're putting 4G
6 only now in the cell sites.

7 MR. MENKES: Okay, so this drive test
8 data that you handed out that says "CDMA 850 receive
9 power" is 3G data; is that right?

10 MR. STERN: That's correct.

11 MR. MENKES: Okay, so could you
12 explain to me again the pertinence of this 3G data
13 relative to the fact that you're only talking about
14 LTE?

15 MR. STERN: What I was demonstrating
16 to you is the -- I'll refer back to A-15.

17 MR. MENKES: Maybe it would help if
18 you told me what frequency A-15 was plotted at.

19 MR. STERN: It's 850 megahertz, which
20 is almost identical to 700 megahertz as far as -- as
21 far as propagation characteristics. So, in looking
22 at A --

23 MR. MENKES: I accept that.

24 MR. STERN: Can I finish the answer,
25 please?

1 MR. MENKES: You can, but my point is
2 that you don't need to because I understand that.

3 MR. STERN: Okay.

4 MR. MENKES: So what you're saying is
5 that these plots were not done at 2100 megahertz.

6 MR. STERN: No.

7 MR. MENKES: Okay, so Verizon is not
8 planning to put LTE at 2100 megahertz in this area.

9 MR. STERN: Yes, they are. They're
10 planning on putting it all.

11 MR. MENKES: Okay.

12 MR. STERN: You asked me questions --

13 MR. MENKES: Yeah.

14 MR. STERN: -- you did not let me
15 finish my answer.

16 MR. MENKES: Okay, wait a minute, wait
17 a minute.

18 MR. STERN: If you let me finish my
19 answer, I will --

20 MR. MENKES: I'm on your side here.

21 CHAIRMAN JOHNSTONE: Hold it, hold it
22 here. This is not a courtroom, and if it was, I'm
23 the judge.

24 Number one, if you're going to ask a
25 question, let him finish the answer. If he doesn't

1 answer your question, you can restate the question,
2 but let him finish his answer because I want to give
3 the gentleman the opportunity to give a complete
4 answer to the question.

5 MR. MENKES: Okay.

6 CHAIRMAN JOHNSTONE: Thank you.

7 MR. STERN: Verizon Wireless is
8 planning to put 4G on all four bands. As I said in
9 my testimony, they have 4G now at 700 megahertz,
10 they have finished deploying in the last month or
11 two 4G at the AWS frequencies. They will be putting
12 4G at AWS frequencies in this cell site when it is
13 built. They will be putting -- they will be
14 decommissioning the 3G from the PCS and launching 4G
15 as the third 4G carrier. And then finally,
16 transitioning off voice, the TDMA 1X voice off of
17 800 megahertz and then deploying 4G onto the network
18 here for 4G coverage, on 800 megahertz.

19 MR. MENKES: Okay. Can I ask the next
20 question? I'm just curious, why wouldn't you have
21 done these plots at 2100 megahertz, then? It would
22 be to your benefit to have done so.

23 MR. STERN: Because we have an 800-,
24 700-megahertz gap in coverage here.

25 MR. MENKES: Okay.

1 MR. STERN: So as of right now, this
2 is the gap that we're experiencing today on the 2G
3 network, and on the 4G network is 700 megahertz.

4 MR. MENKES: Okay. So this CDMA data,
5 then, was used because the 850 frequency is close
6 enough to 700 so that's why you presented it.

7 MR. STERN: Yes.

8 MR. MENKES: Okay. That's fine.

9 Now, I notice in the LTE data that you
10 distributed that this data is plotted showing the
11 reference signal receive power.

12 MR. STERN: Yes.

13 MR. MENKES: Yes, which I agree is the
14 right way to indicate LTE.

15 MR. STERN: Yes.

16 MR. MENKES: You also indicated
17 previously in your testimony tonight that -- I think
18 you said that these plots were done with a 120 dB
19 operational path loss, right?

20 MR. STERN: Yes.

21 MR. MENKES: And that corresponded to
22 an RSIS measurement of minus 80 dB. Did I get that
23 right?

24 MR. STERN: Yes, sir.

25 MR. MENKES: Okay. So now you show

1 LTE with the reference signal receive power.

2 MR. STERN: Yes.

3 MR. MENKES: I'm assuming that the
4 minus 80 dBm of total receive power is Verizon's
5 target for CDMA. Am I correct?

6 MR. STERN: That was the target for
7 the CDMA, that is correct.

8 MR. MENKES: Okay, so do you know, has
9 that target changed in the last few years?

10 MR. STERN: It has gotten -- depending
11 on the environment, it has gotten a little bit
12 stronger, meaning the power has gone up, which means
13 I'm looking for more signal than it was before, so
14 if I came before this Board, and I probably did when
15 I did the Fairmont site on the electric transmission
16 tower, we were talking about minus 85 dBm.

17 MR. MENKES: That's correct.

18 MR. STERN: So, yes, it has gone up as
19 the criteria for what we're trying to serve adding
20 in and building losses has gone up, so yes, it has
21 changed.

22 MR. MENKES: Okay. And the minus 80
23 dBm that you're talking about for CDMA, does that
24 represent both in-vehicle and in-building?

25 MR. STERN: Yes.

1 MR. MENKES: Okay, because I know, in
2 the past, you used minus 85 and minus 74 for the
3 two, so you've settled at minus 80 now for that.

4 MR. STERN: Depends on the
5 environment.

6 MR. MENKES: Okay.

7 MR. STERN: If we were sitting in
8 Newark or Jersey City, there'd be a different set of
9 parameters we'd be talking about.

10 MR. MENKES: Okay, so now let's get
11 back to this data.

12 MR. STERN: Yes.

13 MR. MENKES: It shows 700 megahertz
14 LTE reference signal receive power.

15 MR. STERN: Yes.

16 MR. MENKES: You didn't mention
17 anything as to what Verizon's target is for
18 reference signal receive power for LTE, did you?

19 MR. STERN: I did.

20 MR. MENKES: I must have missed it.

21 MR. STERN: It's minus 100 and minus
22 90 dBm, depending on the environment.

23 MR. MENKES: And is that both in-
24 vehicle and in-building?

25 MR. STERN: Yes.

1 MR. MENKES: Okay. Do you know what
2 other carriers are using for reference signal
3 receive power as an example?

4 MR. STERN: No, I do not.

5 MR. MENKES: Okay. Okay.

6 I had a question about one of the
7 statements in your report on Page 5 that was a
8 little bit confusing --

9 MR. STERN: Sure.

10 MR. MENKES: -- and I have a feeling
11 it may be a poor choice of words rather than a
12 technical error.

13 MR. STERN: No problem.

14 MR. MENKES: So if you could clarify
15 that --

16 MR. STERN: Absolutely.

17 MR. MENKES: -- I would appreciate it.

18 What it says is that in addition to
19 operational path loss and receive signal level, the
20 coverage that is generated from a --

21 CHAIRMAN JOHNSTONE: Excuse me. If
22 you're reading, we don't know where you're reading
23 from. Can you tell us which paragraph and page?

24 MR. MENKES: Sure. I believe it's
25 Page 5, third paragraph from the bottom or fifth

1 paragraph from the top. Let me check that. One,
2 two, three, four -- fifth paragraph.

3 CHAIRMAN JOHNSTONE: Fifth paragraph
4 from the top.

5 MR. MENKES: Yeah.

6 CHAIRMAN JOHNSTONE: Starting with "To
7 comply." The paragraph that you're referring to
8 starts with "To comply with FCC rules."

9 MR. MENKES: Uh, wait a minute. Let
10 me see if I got the right paragraph. I may have the
11 wrong one.

12 CHAIRMAN JOHNSTONE: Take your time.
13 I just want to make sure the record's clear.

14 (brief pause)

15 MR. MENKES: I apologize but I can't
16 find it on Page 5. May I read the statement, in any
17 event, and you'll clarify? I know I copied it out
18 of here.

19 MR. STERN: Okay.

20 MR. MENKES: Oh, it's -- I'm sorry,
21 it's on Page 6. It's on Page 6, second paragraph.

22 MR. STERN: Okay.

23 CHAIRMAN JOHNSTONE: Starting with
24 "The propagation maps"?

25 MR. MENKES: Starting with "The

1 propagation maps."

2 CHAIRMAN JOHNSTONE: Thank you.

3 MR. MENKES: Okay. It says, in the
4 second sentence, "In addition to operational path
5 loss and receive signal level, the coverage that is
6 generated from a given site is dependent on the
7 Verizon Wireless licensed frequency band, the height
8 of the antenna above ground as well as the terrain
9 and the morphology around the sites."

10 What's unclear about that, and I don't
11 think you meant it this way, what I can't figure out
12 is, does that mean that the 120 number goes up and
13 down based on those other parameters or are those
14 other parameters already included in the 120?

15 MR. STERN: I apologize for the
16 confusion. The statement was more to -- and I
17 apologize for not answering your question directly.
18 I'll try to answer the question and then go back to
19 your point specifically. This statement was meant
20 to say "the propagation characteristics of different
21 frequency bands are different."

22 MR. MENKES: Right.

23 MR. STERN: So as I tried to state in
24 my testimony, that the PCS and AWS signals don't go
25 as far given everything else the same, antenna

1 height, power, antenna shape, they just don't go as
2 far.

3 MR. MENKES: Right.

4 MR. STERN: So the coverage depends on
5 the frequency, holding all of the other parameters
6 the same.

7 MR. MENKES: All right, so the point
8 is that the 120 is 120 everywhere, it doesn't change
9 if we look at different places on that map.

10 MR. STERN: It doesn't change but, as
11 I said, if I showed this as PCS, there would be more
12 white, less green on this particular map.

13 MR. MENKES: All right. You said that
14 the tool that you're using to produce those maps is
15 EDX?

16 MR. STERN: Correct.

17 MR. MENKES: All right, and what was
18 the propagation model that you said --

19 MR. STERN: It's called the TIREM
20 model.

21 MR. MENKES: Is that a proprietary
22 model?

23 MR. STERN: I believe so.

24 MR. MENKES: Can you spell that,
25 please?

1 MR. STERN: T-I-R-E-M.

2 MR. MENKES: So there's no reference
3 to that model in the literature anywhere?

4 MR. STERN: No. It uses -- it uses
5 part of -- part of it is using Okumura-Hata, but
6 it's a modification from Okumura-Hata --

7 MR. MENKES: Okay.

8 MR. STERN: -- which is a propagation
9 model that the FCC references in some of its
10 proceedings on how to calculate propagation. The
11 other one the FCC uses is Longley-Rice. And then
12 the different vendors of these software tools will
13 do their own modifications to try to get it as good
14 as possible and that's why we try to get the drive
15 test data so that I can tailor the model to get a
16 better representation of what is reality because a
17 model is just a model; whatever goes into it comes
18 out of it, so we try to put as good of data as
19 possible into the model. And we've been using this
20 model for almost a decade now so we've gone through
21 many iterations of tuning it with different drive
22 test datas.

23 MR. MENKES: Okay. You made reference
24 to a search ring in your presentation and in your
25 document. You haven't presented a search ring. Do

1 you have one that we can see?

2 MR. STERN: I don't have one with me.
3 There was a search ring and I can articulate it for
4 you. The search ring was specifically several
5 hilltops in the vicinity of Oldwick as well as the
6 -- there were three hilltops very close, within a
7 half mile of Oldwick, the center of Oldwick, the
8 intersection of Old Turnpike and King Road, as well
9 as the five power towers that I discussed.

10 MR. MENKES: Okay. I'm not that
11 familiar with this area, I apologize, because I come
12 from northern New Jersey. Is it possible to get a
13 copy of that search ring?

14 MR. STERN: I can provide that.

15 MR. MENKES: All right, Mr. Chairman,
16 is it possible to request that that be provided?

17 MR. STERN: Yeah.

18 CHAIRMAN JOHNSTONE: Would you please
19 send a copy to Ms. Goodchild?

20 MR. STERN: Absolutely.

21 CHAIRMAN JOHNSTONE: Thank you.

22 MR. MENKES: You didn't mention either
23 -- do you want a moment to write that down?

24 MR. STERN: Yes.

25 MR. MENKES: Thank you.

1 (brief pause)

2 MR. MENKES: You didn't mention the
3 antenna orientations on any of these existing
4 Verizon cell sites or for the new proposed cell
5 site. Is it the, essentially, 0/120/240.

6 MR. STERN: Not necessarily.

7 MR. MENKES: Can you tell us -- tell
8 me specifically what the antenna orientations are
9 for the proposed Oldwick site?

10 MR. STERN: I actually don't know.

11 MR. MENKES: What about the Tewksbury
12 site?

13 MR. STERN: I actually don't have that
14 information with me. It's back -- I can get that
15 information for you for the sites that we propagated
16 on here, if that would be helpful.

17 MR. MENKES: Okay.

18 MR. STERN: We have that information,
19 I just do not have it with me.

20 Is there any other information
21 regarding antenna site parameters that you need
22 besides the antenna orientations?

23 MR. MENKES: No, but I'll -- in a
24 moment, I think it might be clear why I'm asking
25 that question.

1 Do you know how recently the Tewksbury
2 site just off Route 78 was built?

3 MR. STERN: Do I know when it was
4 built?

5 MR. MENKES: Yeah, do you know how
6 recently it was built or when it was built?

7 MR. STERN: No, I do not.

8 MR. MENKES: You don't.

9 MR. STERN: Is that information you
10 need?

11 MR. MENKES: No, but let me continue
12 with the questioning and we'll decide whether or not
13 it's appropriate.

14 Do you know if the Tewksbury site is
15 having blocking problems?

16 MR. STERN: I am -- at this point in
17 time, I am not aware that it is having blocking
18 problems today.

19 MR. MENKES: All right, so what you're
20 saying is the Tewksbury site near Route 78 does not
21 appear to be going into overload or blocking in
22 normal traffic situations?

23 MR. STERN: I am not aware of it, but
24 I will go re-ask the question to Verizon Wireless so
25 when I return here and if that information is

1 pertinent, I will make sure that that data is
2 provided to the Board ten days in advance of the
3 next hearing.

4 MR. MENKES: Okay, so let me ask the
5 key question here so you'll see why I'm asking about
6 the antenna orientations and blocking.

7 If I look at your two map exhibits that
8 show the before and after south of the proposed cell
9 site, the before map shows what looks like
10 reasonable coverage, because there's a significant
11 amount of green, indicating that it's within
12 Verizon's acceptable coverage --

13 MR. STERN: Yes.

14 MR. MENKES: -- criteria.

15 MR. STERN: Yes.

16 MR. MENKES: And if you look at the
17 map after the proposed cell site is built, it
18 doesn't look as if you pick up much additional
19 coverage south of the proposed Oldwick cell site.
20 So the reason I'm asking the question and bringing
21 this up is that it doesn't look as if the
22 effectiveness of the Oldwick cell site with its --
23 whatever those antenna orientations are is really
24 getting you much in the way of additional traffic or
25 coverage.

1 MR. STERN: To the south, I would
2 agree with you. We have coverage from the Tewksbury
3 site --

4 MR. MENKES: Right.

5 MR. STERN: -- and that's because the
6 elevation of the hill, we have that coverage and we
7 have the coverage coming straight up from the
8 Tewksbury site.

9 MR. MENKES: Okay.

10 MR. STERN: And I'm going to make an
11 -- I won't assume.

12 So the area that we improve coverage in
13 is to the west and to the north and to the east of
14 this site, so that we're trying to fill in the gaps
15 to the north, east and west from this site,
16 understanding that we do not have a coverage gap
17 going south of the site.

18 MR. MENKES: Okay, so with that
19 statement, wouldn't it seem much more effective for
20 Verizon to invest their dollars and their efforts in
21 positioning that new cell site further north than
22 where you're currently locating it, because you're
23 really not getting much effective coverage in the
24 beta and gamma sectors of that cell site.

25 MR. STERN: It doesn't necessarily

1 mean that I'm going to be putting in standard
2 orientations on the site, and in fact, I probably
3 would not want a sector pointed south from this
4 site, pointing out a sector from the north in
5 Tewksbury, for the reasons that I said before: You
6 do not want extensive overlap between these sites.
7 At the LTE frequency, it's very -- additive
8 properties of LTE overlap is a negative effect as
9 opposed to a positive effect.

10 So my assumption, and I will verify
11 that and have it for you at the next meeting, is
12 that there's going to be some type of offset
13 orientation of these antennas to focus in on the
14 areas to the north, west and east of this site.

15 MR. MENKES: Once again, wouldn't it
16 be easier and more effective to locate that cell
17 site further north and use a more standard antenna
18 orientation? It certainly would be a less extreme
19 variation from Verizon's traditional antenna
20 orientations to do so.

21 MR. STERN: We had -- in the search
22 areas, we had, as I described to you, we had other
23 hilltops in this area. None of those hilltops
24 resulted in any viable candidates, whether it be
25 farms that are in farmland preservation, within the

1 designated Historic District, and inside residential
2 neighborhoods, we're actually in-street, so we did
3 look north of this area, and when you see the search
4 area, we did look around the area, north of Oldwick,
5 along Old Turnpike, east and west of Oldwick, so we
6 did -- the search area was not -- it wasn't just
7 this hilltop, so what I'm trying to say is we did
8 look at other areas. This is what came back as a
9 viable candidate, and in fact, we actually -- you
10 know, the other site we looked at to try to serve
11 this area was the fire department, which is actually
12 due east of here and down lower. We would have gone
13 with a taller structure at that location, but we
14 were trying to -- you know, so we didn't just look
15 here, so we did try to look in other areas to do
16 that.

17 MR. MENKES: I understand.

18 MR. STERN: I understand your point is
19 would it be better if centralized. If I had the
20 opportunity, if the terrain would allow me to move
21 it further north, I would, but there's -- we're
22 dealt with the hand we've got trying to serve this
23 area.

24 MR. MENKES: Okay. And just out of
25 curiosity, you said that PSE&G doesn't allow remote

1 radio heads going forward on their towers.

2 MR. STERN: Nope.

3 MR. MENKES: Do you know what the
4 reason for that is?

5 MR. STERN: Nope. They didn't
6 articulate the reason.

7 MR. MENKES: Okay.

8 MR. STERN: But we have an issue
9 because we're installing remote radio heads all over
10 the network right now as part of the LTE deployment,
11 and specifically in AWS. Because of the propagation
12 characteristics of AWS, we wanted additional gain by
13 using remote radio head.

14 MR. MENKES: I understand. Are you
15 proposing to use remote radio heads at the Oldwick
16 site?

17 MR. STERN: Yes.

18 MR. MENKES: You are. Okay.

19 Okay. I have one question which is
20 rather technical and we may best take this offline
21 because I don't -- I truly don't need to embarrass
22 you here. It requires doing some arithmetic.

23 My understanding is that Verizon uses
24 two-by-two NEMO; is that correct?

25 MR. STERN: I believe so.

1 MR. MENKES: Okay, so there's two --

2 MR. STERN: I'd have to verify that.

3 MR. MENKES: Okay, so there's two
4 transmit antennas?

5 MR. STERN: Two transmit, two receive
6 antennas.

7 MR. MENKES: Yeah, okay. You said
8 that the operational path loss that you use is 120
9 dB, right?

10 MR. STERN: Yes.

11 MR. MENKES: Okay. So if I look at
12 the report that came out from Pinnacle Telecom Group
13 with regard to the maximum exposure levels --

14 MR. STERN: Um-hum.

15 MR. MENKES: -- in his report, he
16 lists at each of the different frequencies the
17 transmit power. Okay? And if I understand your
18 definition of "operational path loss," it's
19 effectively measured from, I believe, the J4
20 connector all the way to the receive terminal?

21 MR. STERN: That's the theory,
22 correct.

23 MR. MENKES: Okay. So if I take the
24 maximum transmit power that's in this report, and
25 let's assume there's three antennas, so I'll take 3

1 dB off of that, okay? And I subtract, then, the 120
2 dB path loss, I don't come up with your 80 dBm
3 receive signal level. Could you help me understand
4 that? I come up with a hotter signal level.

5 MR. STERN: A what?

6 MR. MENKES: A hotter signal level.

7 MR. STERN: Okay.

8 MR. MENKES: Could you help me
9 understand --

10 MR. STERN: No. I can't tell you why
11 the math is different. This is -- in sitting down
12 with Verizon, they came up and said "This is the
13 operational path loss that you shall use" --

14 MR. MENKES: Um-hum.

15 MR. STERN: -- and when we said "How
16 do we represent" -- and we actually had this
17 discussion, this was about five years ago, I sat
18 down with their engineering team and I said "How do
19 I articulate OPL to a Board that's heard 'minus 85
20 dBm' for the last ten years? How do I articulate
21 that?" and we came up with a set of equivalencies
22 between path loss and dBm signal. So when we looked
23 at this, that was the number that we came up with.
24 And I understand your question is, when you do the
25 math, you don't see -- and you add in the antenna

1 gain, transmit from the base station, take into
2 account line loss, loss through the air, fading, all
3 the other pieces that go into that equation, you're
4 coming up with a signal that's hotter. You don't
5 get -- come up with 120 dBm losses to come up with
6 that.

7 MR. MENKES: Well, I can forget all of
8 that because in your definition, you say it's 120 dB
9 down from the J4 connector, and unless there's an
10 error in this report in terms of the maximum power,
11 if I subtract 120 dB from this number and I give you
12 3 dB for the two antennas, it doesn't come out to
13 minus 80 dBm.

14 MR. STERN: And I understand that and
15 that's why I referenced that. We're referencing
16 this as a minus dBm signal.

17 MR. MENKES: Okay.

18 MR. STERN: And, I mean, that's the
19 reality. That's the reality of the signal levels
20 we're measuring on the street, that's the reality of
21 the data that we collected, and that's the co-
22 factor, the translation from OPL to signal strength
23 that they have given us, that's what I've been
24 using.

25 MR. MENKES: Okay. I'm not

1 disagreeing that Verizon has the right to choose any
2 number they wish.

3 MR. STERN: Yes.

4 MR. MENKES: What is a problem to me
5 is that the numbers don't hang together. The minus
6 -- the 120 operational path loss doesn't agree with
7 the numbers that you're quoting these graphs
8 represent. Okay?

9 MR. STERN: Um-hum. I understand.

10 MR. MENKES: So what bothers me about
11 that in particular is that the numbers come out much
12 hotter, and that works to your advantage in terms of
13 showing additional outages. Okay? So that's where
14 the problem is.

15 MR. STERN: Okay.

16 MR. MENKES: So if you'd like to
17 discuss it offline, I'd be happy to do that, or if
18 you'd like to --

19 MR. STERN: I could discuss it
20 offline, that -- as I said, the real goal here was
21 the minus 80 dBm signal, and I pulled Verizon back
22 that number, saying that's the only way I can
23 articulate it to the Board. Trying to articulate to
24 a Board how do I calculate 120 dBm path loss, you
25 and I can discuss that and have a good discussion

1 and go back and forth on the numbers, but trying to
2 explain that to the Board members and the audience
3 is -- so I prefer to stick to the minus 80 dBm and
4 focus on the minus 80 dBm.

5 MR. MENKES: So are you suggesting,
6 then, that I should assume that these are not 120 dB
7 path loss but they represent minus 80 dBm?

8 MR. STERN: At this point, you can
9 make your own conclusions. What we've said with
10 Verizon is a 120 dB path loss minus 80 dBm. That's
11 the numbers that we're given from Verizon and those
12 are the numbers we calculated.

13 MR. MENKES: So --

14 MR. STERN: The software calculated.

15 MR. MENKES: -- are you suggesting,
16 then, that you're not willing to verify, to my
17 satisfaction, how those numbers correlate?

18 MR. STERN: I did not say I'm not
19 willing to, but in this -- in this setting, I don't
20 have the information in front of me --

21 MR. MENKES: I understand.

22 MR. STERN: -- that I can sit and go
23 over that whole calculation with you and all the
24 other components to come up with that.

25 MR. MENKES: Okay. The reason I'm

1 asking these questions is, in light of Bill's
2 question about the previous data being so different
3 from this data and now you're telling me that it's
4 not obvious how there's the correlation between the
5 120 and the minus 80 dBm. It creates doubt in my
6 mind as to the validity of these graphs. So if
7 you'd like to come back the next time and explain
8 that, I think --

9 MR. STERN: Sure.

10 MR. MENKES: -- I'd be comfortable.

11 MR. STERN: That's fine. I will come
12 back with the information and show you how we
13 calculated it.

14 MR. MENKES: Okay, I appreciate that.
15 Okay.

16 All right, I think that's all the
17 questions that I have, Mr. Chairman.

18 CHAIRMAN JOHNSTONE: Thank you, sir.
19 Danny?

20 MR. BERNSTEIN: Yeah, yeah. I have a
21 few.

22 CHAIRMAN JOHNSTONE: And by the way,
23 sir, if you need a break at any time, just let me
24 know.

25 MR. STERN: Thank you.

1 MR. BERNSTEIN: You say that -- okay.
2 I think you testified and I've heard it said that
3 wireless carriers have to provide reliable and
4 seamless coverage, right?

5 MR. STERN: Yes.

6 MR. BERNSTEIN: That's FCC rule?

7 MR. STERN: FCC says "above mediocre."

8 MR. BERNSTEIN: Okay. And does the
9 FCC give a number, a decibel -- decibel, I guess, is
10 how you measure it?

11 MR. STERN: No, they do not.

12 MR. BERNSTEIN: They do not, so --

13 MR. STERN: They allow each of the
14 carriers to engineer their systems to provide that
15 service.

16 MR. BERNSTEIN: Okay. Now, I'm
17 looking at A-16 and I believe you testified before
18 that minus 80 is the acceptable level and above that
19 is not acceptable for Verizon, correct?

20 MR. STERN: It's actually below that,
21 meaning higher -- increase in negative numbers is --

22 CHAIRMAN JOHNSTONE: Unacceptable.

23 MR. STERN: -- unacceptable.

24 MR. BERNSTEIN: Okay, so if it's minus
25 79, it's acceptable.

1 MR. STERN: Correct.

2 MR. BERNSTEIN: If it's minus 81, it's
3 not acceptable.

4 MR. STERN: Correct.

5 MR. BERNSTEIN: All right. Now, I'm
6 looking at A-16 and the north/south route, I
7 believe, is Old Turnpike Road?

8 MR. STERN: Yes.

9 MR. BERNSTEIN: Okay. And I see here,
10 at one point, it's -- let's see, 80.5, and at
11 another point, it's minus 80.5; at another point,
12 it's minus 78.6, so the minus 78.6 would be
13 acceptable and the minus 80.5 wouldn't be, right?

14 MR. STERN: That would be the border
15 between the two. That's where you would find -- on
16 my map, that's where you would find the green
17 shaded, on A-15.

18 MR. BERNSTEIN: Yeah. Now, here's my
19 question. If I'm living in the minus 80.5 home and
20 my neighbor's in the minus 78.6 home, how many
21 dropped calls would I get and how many dropped calls
22 would my neighbor get?

23 MR. STERN: That's a very good
24 question and I apologize I didn't walk through this
25 --

1 MR. BERNSTEIN: You don't have to
2 apologize. Go ahead.

3 MR. STERN: -- through my direct
4 testimony. Just because it's white doesn't mean I
5 have no service. So there is -- there is service
6 through here; the service is less than Verizon's
7 reliable service level of minus 80 dBm. What does
8 that mean? That for all devices, in all
9 environments, as I described it, you may not have
10 service, you may not be able to connect your
11 service. But you may be able to, depending on where
12 you are, what your actual signal level is, and what
13 is the -- to go back to the question just before,
14 what's the path loss between you and that antenna?
15 Do I have something in between you? That minus 80
16 takes into account all of the trees, buildings, and
17 all of the losses that I'm trying to make sure that
18 I overcome. So that's the level. But if I'm
19 sitting in my backyard and my signal level is a
20 minus 85, I'm going to have good signal level
21 because what I'm trying to protect against is when I
22 get inside of a building, go into the basement, I'm
23 still going to have signal, so depending on where
24 you are in the environment, your neighbor may have
25 signal, you may have signal, so just because I'm

1 showing white in here doesn't mean I don't have
2 coverage in there, I don't have some signal.

3 CHAIRMAN JOHNSTONE: Excuse me.

4 Ladies, ladies --

5 MEMBER OF THE PUBLIC: Sorry.

6 CHAIRMAN JOHNSTONE: -- if you're
7 going to talk, why don't you take it outside,
8 please. Sorry.

9 MR. BERNSTEIN: Okay. My question,
10 though, if my neighbor and I were both in our
11 basement, I don't -- playing pool or whatever and we
12 want to call someone and I'm at minus 79 and my
13 neighbor's at minus 81, what's the difference -- you
14 know, statistically, am I going to get a thousand
15 calls perfect, they're all going through, and my
16 neighbor will get 99 percent, and then I do it, you
17 know, minus 78 and minus 82; in other words, are
18 there numbers that you can refer to and say "Mr.
19 Bernstein, if it's minus 78, this is the percentage
20 of dropped calls, and if it's minus 82, this is the
21 percentage," or is it "We have a computer program
22 and we have to rely on it, whatever it says"?

23 MR. STERN: I don't have a direct
24 correlation between what your signal level is, I
25 just -- we just know that at those signal levels, as

1 you go down closer to the receive signal level
2 limits of the radio, you're more likely to have a
3 dropped call, you're more likely to have a poor data
4 session, meaning higher bit error rates and slower
5 throughput. As the data speed -- the data speed
6 now, the data network will throttle back and forth
7 the data speed, but how much data you can push
8 through depends on the quality of your service. As
9 your quality gets better, you have better signal
10 strength, I have less bit error rates, it'll open up
11 that data speed and allow more and more data. So if
12 you are trying to download a file or you're trying
13 to watch a video, if you go down into the basement
14 and the signal level's below that threshold outside
15 so you're definitely below that threshold on the
16 inside, you're going to see that data pixilate, the
17 Facebook chat you're doing will pixilate, so that's
18 how it will manifest itself. As we convert over
19 from the 1X to the voice to the 4G voice, that'll
20 actually result specifically in dropped calls on the
21 data network.

22 MR. BERNSTEIN: But you can't give me
23 objective numbers as the difference between minus
24 81 --

25 MR. STERN: No.

1 MR. BERNSTEIN: -- and minus 79.

2 MR. STERN: No, I can't give you that.

3 MR. BERNSTEIN: Okay. Now, is there a
4 minimum number of homes or businesses that a cell --
5 that the company has to cover by a new cell site; in
6 other words, if it was only a hundred homes or a
7 country road, would Verizon or the other cell
8 companies set up a cell tower or is there some sort
9 of a minimum that they would require, because we
10 know not every site in the U.S. meets the minus 80
11 test of Verizon or the test of the other cell
12 companies, so what's the minimum there?

13 MR. STERN: I'm not aware of that
14 standard.

15 MR. BERNSTEIN: Would you say that if
16 it was ten homes that weren't served that minus 80,
17 that the company would put up a cell site for that?

18 MR. STERN: I'm not aware of that
19 business aspect and I'm not privy to that
20 information and I'm not part of that and I'm not an
21 expert in making that decision.

22 MR. BERNSTEIN: And you can't tell us
23 how many new facilities -- new homes will be served
24 by the tower on the Melick Farm if, in fact, it's
25 approved?

1 MR. STERN: I didn't say I couldn't
2 tell you that.

3 MR. BERNSTEIN: Well, can you tell me
4 how many homes?

5 MR. STERN: I don't know that
6 information at this point in time --

7 MR. BERNSTEIN: Okay.

8 MR. STERN: -- but that's a
9 calculation I can do.

10 MR. BERNSTEIN: But you don't know at
11 this point in time.

12 MR. STERN: No.

13 MR. BERNSTEIN: Okay. Now, is it only
14 -- would the entire Melick property improve service,
15 although not, in some locations, optimally? In
16 other words --

17 MR. STERN: I don't understand the
18 question.

19 MR. BERNSTEIN: Okay. Do you have to
20 put the tower on certain areas on the Melick Farm to
21 get an improvement in service, maybe not optimal
22 service but if it was pushed back to the rear,
23 would, in fact, it increase coverage but possibly
24 not the extent that you're discussing?

25 MR. STERN: The extent of the areas,

1 in listening to the previous testimony, in listening
2 to some of the suggested locations, as long as we
3 try to maintain the antenna height above mean sea
4 level, meaning that I can shrink or increase the
5 size of the new tall structure to maintain that --

6 MR. BERNSTEIN: Height?

7 MR. STERN: -- maintain the antenna
8 height above mean sea level, then most of the
9 locations on the western side of the Melick property
10 would cover the gap in service. I think, as we get
11 further to the east of that closer to Old Turnpike,
12 the height would -- probably, it would work just as
13 well, so I think, in thinking about it, probably
14 anywhere on the Melick property, as long as I could
15 maintain something close to the antenna height above
16 mean sea level, I would be able to fill the gap in
17 coverage as we're trying to.

18 MR. BERNSTEIN: Now, I'm looking at
19 the study that you've prepared, the December 3
20 study --

21 MR. STERN: Um-hum.

22 MR. BERNSTEIN: -- and it indicates
23 even if this tower were built, there would be
24 substantial areas -- I assume north is up -- to the
25 east and west --

1 MR. STERN: Yup.

2 MR. BERNSTEIN: -- where there
3 wouldn't be minus 80 coverage, right?

4 MR. STERN: Yes.

5 MR. BERNSTEIN: Now, is Verizon
6 looking, at this time, for sites so that they can
7 cover the areas to the east and west that don't have
8 the coverage that the company wants?

9 MR. STERN: Yes.

10 MR. BERNSTEIN: The company is, you're
11 saying, looking at those sites.

12 MR. STERN: Yes.

13 MR. BERNSTEIN: Okay, so we --

14 MR. STERN: At the end of my direct
15 testimony, I discussed --

16 MR. BERNSTEIN: Yes.

17 MR. STERN: -- two of those locations.

18 MR. BERNSTEIN: Right. Yeah.

19 CHAIRMAN JOHNSTONE: He was talking
20 about Mountainville and he was talking about
21 Pottersville.

22 MR. STERN: Yes.

23 MR. BERNSTEIN: Yeah, so we can
24 expect, if they don't conform with our requirements,
25 we'll have two new applications, possibly, before

1 the Board.

2 MR. STERN: Yes.

3 MR. BERNSTEIN: Now, tell us --

4 CHAIRMAN JOHNSTONE: Hold on. He
5 wants to take a time-out.

6 MR. BERNSTEIN: Oh.

7 (brief pause)

8 MR. STERN: Go ahead.

9 MR. BERNSTEIN: Okay, thanks. Tell us
10 what a crane test is.

11 MR. STERN: A crane test is akin to
12 the drive test data that you have there, except what
13 I do is I bring a crane out to the proposed location
14 and hang an antenna and a test transmitter at the
15 various heights that I want to test and determine
16 what the optimal height is for the height of a
17 proposed new structure.

18 MR. BERNSTEIN: And --

19 MR. STERN: And I -- I apologize.

20 MR. BERNSTEIN: No.

21 MR. STERN: And I drive around
22 measuring those signal levels, the same as I measure
23 -- we have the drive test data from Verizon, so it
24 would be a similar process to what you see there.

25 MR. BERNSTEIN: Okay, but with your

1 drive test, you were measuring existing coverage,
2 right?

3 MR. STERN: This particular drive test
4 that we had, the only measurement we were making was
5 existing coverage.

6 MR. BERNSTEIN: And you're projecting
7 coverage based on a computer program, correct?

8 MR. STERN: We project it based upon
9 the computer program that was tuned with the
10 reference drive test data.

11 MR. BERNSTEIN: Okay, but computer
12 program -- as we learned in this case, computer
13 programs can be erroneous, correct? That, in fact,
14 the original study was erroneous, right?

15 MR. STERN: Correct.

16 MR. BERNSTEIN: Yeah. Now, with the
17 crane test, you're actually transmitting from the
18 site at the height that's proposed, right?

19 MR. STERN: That's correct.

20 MR. BERNSTEIN: And the company
21 decided not to do a crane test, correct?

22 MR. STERN: At this point, Verizon did
23 not authorize us to do a crane test.

24 MR. BERNSTEIN: All right. Now, how
25 many times -- how many of these -- I'm sorry, strike

1 that from the record.

2 I've not seen as many of these cases as
3 Mr. Meese, I'm sure he's seen in the hundreds, but
4 I've never seen one that didn't have a search ring.
5 Is it your practice not to show the search ring or
6 is that unusual that that not take place? Because
7 in all these cases -- I've only heard maybe 15 or 20
8 of them -- I've always seen a search ring. Isn't
9 that the norm or maybe not with yourself?

10 MR. STERN: I actually have only
11 presented the search ring a dozen times over 200
12 cases.

13 MR. BERNSTEIN: Okay. And how many
14 cases have you been involved with?

15 MR. STERN: Over 200 just in the State
16 of New Jersey.

17 MR. BERNSTEIN: And how about overall?

18 MR. STERN: I don't know. Between
19 three- and four-hundred.

20 MR. BERNSTEIN: Okay. And you've
21 always testified for the carrier.

22 MR. STERN: Yes.

23 MR. BERNSTEIN: Yeah. And you've
24 always supported the cell site wherever it's
25 proposed. In other words, you've always testified

1 that the Board should approve the application that
2 was submitted.

3 MR. STERN: Yes.

4 MR. BERNSTEIN: Okay. And I think you
5 said tonight -- let me get your words -- the new
6 facility must be constructed at 120 feet?

7 MR. STERN: That was the minimum
8 height required based upon our model.

9 MR. BERNSTEIN: Okay. And if it
10 didn't, then there would be some homes that wouldn't
11 get the coverage that Verizon insisted on, correct?

12 MR. STERN: That's -- those are not my
13 words.

14 MR. BERNSTEIN: I'm asking you that.
15 If it wasn't constructed, there would be certain
16 facilities that would get less than minus 80
17 coverage.

18 MR. STERN: In order to take advantage
19 of this location at Melick Farm, at 120, I could
20 fill out as much as I could possibly fill out. If I
21 went -- the reason that we said 120 is I didn't get
22 anything else by going any higher. I couldn't --
23 because of the terrain, I can't get -- I don't get
24 much higher. Going higher, going 140, 150, 160,
25 didn't get me anything. As I dropped down, then I

1 started to see some shrinkage where I could cover it
2 at 120, so I preferred to try to get as many of the
3 roads in and around this area as possible, so that
4 was the 120 that we looked at.

5 MR. BERNSTEIN: Now, it's shown on --
6 you've seen all the plans, I'm sure, right?

7 MR. STERN: Yes.

8 MR. BERNSTEIN: Yeah. The plans show
9 space for four carriers, correct?

10 MR. STERN: Correct.

11 MR. BERNSTEIN: And do you know
12 whether or not -- the heights are lower than 120,
13 correct?

14 MR. STERN: Right.

15 MR. BERNSTEIN: For the other
16 carriers?

17 MR. STERN: Yes.

18 MR. BERNSTEIN: And would you
19 anticipate that one or more carriers, if the tower's
20 built, would go on that site?

21 MR. STERN: Yes.

22 MR. BERNSTEIN: And would you
23 anticipate that that would be an optimal -- there
24 are four other cellular carriers? I've heard that
25 said. Is that right or...

1 MR. STERN: As of right now with
2 consolidation --

3 MR. BERNSTEIN: Yes.

4 MR. STERN: -- it's down to three
5 other carriers.

6 MR. BERNSTEIN: Okay. Would you -- so
7 four total.

8 MR. STERN: Four total.

9 MR. BERNSTEIN: Okay. Would you
10 anticipate that's the optimal location and the
11 optimal height for the other three carriers or it
12 would be a site that would be acceptable but not
13 optimal?

14 MR. STERN: I have not evaluated the
15 other three carriers' networks specifically in this
16 area to see where else they provide coverage. I
17 know that most of the carriers are on the Tewksbury
18 site and a number of the carriers are on the power
19 towers near the Fairmont site, so I know that there
20 are sites in the area. So, to the extent that I've
21 done that much analysis on the other carriers, this
22 would be a location that would be desirable, most
23 likely, to most carriers. As far as where they
24 would go on the site, they'd each have to come --
25 they'd each have to make that decision on what

1 height is available on the tower.

2 MR. BERNSTEIN: Typically where you
3 have collocation, are all the cellular towers
4 getting optimal coverage or are they getting
5 coverage that's helpful but not optimal? I mean,
6 does it -- does it all mesh that, yes, we're a
7 hundred feet, you're at 120, but the hundred feet
8 just happens to be optimal, where at 80 feet with
9 the next one, it just happens to be optimal, or is
10 it that they're acceptable rather than optimal? Or
11 you can't say? You must have testified to the
12 second or third carrier.

13 MR. STERN: Sure. And the way that
14 that testimony usually progresses is I either can
15 get -- so let's say at this particular tower --

16 MR. BERNSTEIN: Yeah.

17 MR. STERN: -- I'm the third guy in.
18 I either get a hundred feet or I have to prove that
19 a hundred feet is not going to be sufficient for me
20 and I'm going to ask the Zoning Board to allow me to
21 put a ten-foot extension so I can go to 130 feet and
22 I'm going to have to demonstrate why a hundred feet
23 doesn't work and why I need 130 or I'm going to take
24 the pill -- I'm going to use the 100 and go from
25 there.

1 MR. BERNSTEIN: And do you find that
2 some of the carriers take, in your words, "take the
3 pill," get service that's better but not optimal?

4 MR. STERN: It's divided between the
5 two. I have sites where I've zoned the extensions
6 and I have sites where we've gone at the 100 feet
7 and then looked for the next site.

8 MR. BERNSTEIN: Thank you. That's all
9 I had, Mr. Chairman.

10 CHAIRMAN JOHNSTONE: Shana, any
11 questions?

12 MS. GOODCHILD: No.

13 CHAIRMAN JOHNSTONE: Thank you.

14 Mr. Stern, I just have a couple
15 questions. I'd like to ask you initially, if I
16 understand correctly, you're indicating here that
17 the -- that this is looking for -- for the ability
18 at this site to have all types of devices being at
19 optimal under all conditions; is that correct?

20 MR. STERN: Correct.

21 CHAIRMAN JOHNSTONE: Because if I
22 understand from what you previously just indicated,
23 that even in the white areas, there's still service,
24 correct?

25 MR. STERN: Yes.

1 CHAIRMAN JOHNSTONE: At this point in
2 time? In the white areas, there is still service?

3 MR. STERN: Yes, there is service.

4 CHAIRMAN JOHNSTONE: What you're
5 trying to do, if I understand correctly, is improve
6 the service in the white areas.

7 MR. STERN: Yeah, I'm trying to bring
8 the service up in the white areas to the green so
9 that I can -- as I've stated and I'll keep the
10 mantra going, reliable service, all devices, all
11 environment, so whether it's in-building --

12 CHAIRMAN JOHNSTONE: You don't want to
13 have any -- what you're trying to do is prevent
14 dropping of calls in these different areas in the
15 white areas.

16 MR. STERN: Dropped calls as well as
17 poor data service.

18 CHAIRMAN JOHNSTONE: And you have
19 indicated to us that you believe that the Oldwick
20 site is the best site. Is that correct?

21 MR. STERN: Is it the best site? It's
22 the site available to us right now.

23 CHAIRMAN JOHNSTONE: Okay. What would
24 have been the best site?

25 MR. STERN: Um, probably something on

1 the Historic -- in the middle of the Historic --
2 just north of the center -- northeast of the center
3 of town on the hill in the Historic District. That
4 would have been the best site. I'll point to it
5 here (indicating). This was one of the hills in the
6 search area.

7 CHAIRMAN JOHNSTONE: Okay. Where is
8 that, on 517?

9 MR. STERN: Right at the corner of --
10 just north of the intersection of Old Turnpike and
11 King Road, northeast of there. The ground elevation
12 is not so high there, it's only 264 as compared to
13 the 400 at the hilltop that we're right up against
14 --

15 CHAIRMAN JOHNSTONE: You're talking
16 about, as you're going out of town on 517, you're
17 talking about on the right-hand side up on the hill.

18 MR. STERN: 517 is Oldwick Turnpike?

19 CHAIRMAN JOHNSTONE: Yeah.

20 MR. STERN: Yeah. I'm within a
21 stone's throw of the center of Oldwick.

22 CHAIRMAN JOHNSTONE: All right.

23 MR. STERN: You're asking me if that's
24 the -- that would give me the views up and down the
25 major roads and get me the views that I want.

1 CHAIRMAN JOHNSTONE: Thank you.

2 MR. STERN: But it would be a taller
3 structure than I'm proposing here --

4 CHAIRMAN JOHNSTONE: All right.

5 MR. STERN: -- but you asked me where
6 it would be optimal. That would be optimal.

7 CHAIRMAN JOHNSTONE: I'm just trying
8 to get an idea.

9 Now, my question to you is this: Did
10 you ever consider -- did Verizon ever consider
11 making an application to put in antennas that would
12 be in multiple locations as opposed to one large
13 location?

14 MR. STERN: No, we did not.

15 CHAIRMAN JOHNSTONE: Okay. Now, the
16 reason why I'm asking that is you've indicated that
17 Oldwick gives you what you perceive to be the best
18 of locations that are available to you at this point
19 in time and I'm looking at your map, and what has
20 already been discussed, while it helps you to the
21 northeast, it doesn't do a heck of a lot for you to
22 the south and it certainly doesn't do a heck of a
23 lot for you to the west; is that correct?

24 MR. STERN: We do have improved
25 coverage to the west --

1 CHAIRMAN JOHNSTONE: Okay.

2 MR. STERN: -- to the east -- to the
3 south side of Roundtop and southwest of Roundtop, so
4 we've pushed the signal due east of our site.
5 Basically, there's a cone-shaped area that we don't
6 serve to the west of Roundtop, so I'm actually
7 filling in a large part of the area to the east of
8 -- to the west of Roundtop --

9 CHAIRMAN JOHNSTONE: Okay.

10 MR. STERN: -- the southwest of
11 Roundtop.

12 CHAIRMAN JOHNSTONE: Let me ask you
13 this: If you put an antenna on Site 12/4, which is
14 the one that's just south on Hill and Dale Road --

15 MR. STERN: Yup.

16 CHAIRMAN JOHNSTONE: First of all,
17 that was one of the sites that you indicated PSE&G
18 or JCP&L, whichever one owns this thing, said they
19 would be...

20 MR. STERN: We did not consider it so
21 we didn't ask the question.

22 CHAIRMAN JOHNSTONE: Oh, so you didn't
23 ask the question.

24 MR. STERN: That one, I didn't ask the
25 question because it was really too low and it was --

1 CHAIRMAN JOHNSTONE: Hold on. I hear
2 what you're saying.

3 MR. STERN: Okay.

4 CHAIRMAN JOHNSTONE: You're trying to
5 get the biggest bang for your buck, one location, as
6 high as possible, the best location, right?

7 MR. STERN: Yes.

8 CHAIRMAN JOHNSTONE: I'm looking in a
9 different direction, I'm trying to go in a different
10 direction. All right?

11 MR. STERN: Okay.

12 CHAIRMAN JOHNSTONE: So what I'm
13 suggesting to you is, if you put one on that tower
14 at 12/4, would you agree with me that that would
15 improve your site direction both east and west?
16 Because I can tell you for a fact the land
17 throughout that entire area is unimpeded all the way
18 through there. So would you agree with me that if
19 there's no impediments such as what you were worried
20 about with Roundtop, would you agree with me that
21 east and west would be taken care of by that
22 particular location, yes or no?

23 MR. STERN: I haven't propagated it
24 but I can look at it. I don't --

25 CHAIRMAN JOHNSTONE: I want you to

1 look at it, all right? Because I'm going to go to
2 the next one now. I'm going to go to the next one
3 now.

4 MR. STERN: Okay.

5 CHAIRMAN JOHNSTONE: Okay? Now,
6 you've indicated also one of the places that you
7 considered was the Julian Gage Home Collection,
8 which was the former church, correct?

9 MR. STERN: Yes.

10 CHAIRMAN JOHNSTONE: Now, if, in fact,
11 you were given permission to put up a tower on that
12 one, as you indicated, putting a revised steeple on
13 there --

14 MR. STERN: Um-hum.

15 CHAIRMAN JOHNSTONE: -- would you
16 agree with me that by doing so, you would be able to
17 cover the site north and south along Old Turnpike
18 Road?

19 MR. STERN: I would have a direct view
20 up and down Old Turnpike Road, correct.

21 CHAIRMAN JOHNSTONE: In fact, you
22 would probably cover more than what you're showing
23 on what you're trying to do; isn't that correct?

24 MR. STERN: I don't think so.

25 CHAIRMAN JOHNSTONE: Okay. But you at

1 least --

2 MR. STERN: I don't think so.

3 CHAIRMAN JOHNSTONE: You would
4 probably get the same thing -- would you agree with
5 me -- north and south.

6 MR. STERN: North and south on Old
7 Turnpike, I would agree.

8 CHAIRMAN JOHNSTONE: Okay. So what
9 I'm getting at, just my suggestion, if you put one
10 on the tower -- okay? -- on Hill and Dale Road, you
11 would take care of east and west, and if you put one
12 up on the tower of the old church, you take care of
13 north and south; and would you not agree with me
14 that by doing both of those, it's probably less
15 expensive than putting up the tower that's being
16 proposed, including the barn, on the location you're
17 talking about?

18 MR. STERN: It would be -- would it be
19 less expensive? I don't think so.

20 CHAIRMAN JOHNSTONE: Would it be equal
21 to?

22 MR. STERN: I have two sets of
23 equipment I have to buy now.

24 CHAIRMAN JOHNSTONE: That's right, but
25 you're also not building a huge tower, you're not

1 building a huge tower as well.

2 MR. STERN: The equipment tends to be
3 the dominant equation in this thing.

4 CHAIRMAN JOHNSTONE: Well, I'm not
5 going to sit here and argue with you.

6 MR. STERN: Plus the church steeple
7 scares me, but I will -- you know, we've done it
8 before --

9 CHAIRMAN JOHNSTONE: You're the one
10 who suggested it. You suggested it.

11 MR. STERN: I understand.

12 CHAIRMAN JOHNSTONE: You suggested
13 it --

14 MR. STERN: I understand. I'm just
15 saying, we looked at it and we found it was too
16 short.

17 CHAIRMAN JOHNSTONE: I want you to
18 look at that.

19 Now, the other thing is, if you want to
20 fill the gap further north, would you agree with me
21 that it would be appropriate to put another tower on
22 the high-tension wire that's in that valley between
23 -- on 517? Would that not also take care of an
24 additional space as well?

25 MR. STERN: So you're talking about

1 the tower where I'm --

2 CHAIRMAN JOHNSTONE: Yes.

3 MR. STERN: -- pointing at right now
4 (indicating)?

5 CHAIRMAN JOHNSTONE: Right, the one
6 that's in between on 517 which you indicated was not
7 good enough because it would block you to the south.
8 We've already taken care of the north and south and
9 the east and west. I'm asking you, would it not be
10 feasible that if you put one on that tower, it would
11 take care of things further to the northwest? And
12 I'll even go one step further. There's another one
13 further up on the hill off of 517 that would even be
14 higher. Would that not also take care of your
15 problems going to the northwest -- or northeast?

16 MR. STERN: It might.

17 CHAIRMAN JOHNSTONE: Okay. So would
18 you agree with me there are variable opportunities
19 here that would be less -- should we say less
20 devastating to the scenery if we put those in the
21 church or we put those on Hill and Dale Road or we
22 put those in the valley at three different
23 locations, you would satisfy -- you would certainly
24 blanket more coverage than you're getting from your
25 one spot; would you not agree with me?

1 MR. MEESE: Mr. Chairman?

2 CHAIRMAN JOHNSTONE: Yes.

3 MR. MEESE: He will look at those
4 coverage in terms of what impact --

5 CHAIRMAN JOHNSTONE: I'm looking at it
6 in a common-sense point at this point, does he
7 disagree with that.

8 MR. MEESE: He's an RF engineer.

9 CHAIRMAN JOHNSTONE: Yeah.

10 MR. MEESE: I think that's a question
11 for Mr. Kronk, the planner.

12 CHAIRMAN JOHNSTONE: No, I don't think
13 so. He's an RF engineer, this is the guy who's here
14 to talk to us about coverage.

15 MR. MEESE: About coverage.

16 CHAIRMAN JOHNSTONE: And I'm asking
17 you, sir, would you not agree with me, those three
18 areas that I just talked about would give you far
19 more coverage than the one you're talking about in
20 the middle of Oldwick? And if it isn't, I want to
21 know why.

22 MR. STERN: Doing a three-site split,
23 I would get more coverage.

24 CHAIRMAN JOHNSTONE: Thank you. Okay.
25 I would like you to look into those for me, please,

1 and get back to us at the next meeting.

2 And by the way, ladies and gentlemen,
3 so you know, we're quitting at 10:00 tonight and
4 that's because the bosses here, the janitors, say we
5 have to be out of here by 10:00. Okay?

6 I'm going to stop for the moment. I
7 may have other questions but I'll let somebody else
8 ask questions. Betsy?

9 MS. BAIRD: Right now, I don't have
10 any questions, I just have an observation and that
11 would be if the overlays had been made so they would
12 cover each other to see where the coverage is and
13 then what would be proposed, and you probably have
14 to use two colors but it would be two different
15 overlays on the same -- so that we're not looking
16 from one to the other to see what the change would
17 be.

18 MR. STERN: Okay.

19 MS. CZAJKOWSKI: No questions.

20 CHAIRMAN JOHNSTONE: No questions?
21 Michael?

22 MR. MORIARTY: Just a few.

23 CHAIRMAN JOHNSTONE: Go right ahead.
24 I'll give you ten minutes.

25 MR. MORIARTY: Thanks.

1 (Laughter)

2 MR. MORIARTY: Mr. Stern, I was
3 tracking all along, I think I got a little confused
4 with Mr. Bernstein's questions and your responses
5 regarding the tests that were done and which ones.
6 So there was tests done on the 14th of March.

7 MR. STERN: Yes.

8 MR. MORIARTY: Right? Which is the --
9 what you handed out tonight in terms of --

10 MR. STERN: Yes.

11 MR. MORIARTY: And how that test was
12 conducted in terms of where the location of the base
13 station was, can you go through that?

14 MR. STERN: That test -- the test that
15 was done on March 14, all I used that information
16 for was to validate a previous test that was done
17 several years ago, and I'll talk about that in a
18 second, I'll just try to answer your question --
19 that the data hadn't changed, that the coverage maps
20 that I produced in December reflected what is, in
21 reality, on the ground today. So the data that we
22 used to tune the map was data that was taken from
23 the crane test at the fire company, the Oldwick Fire
24 Company. We did a crane test there several years
25 ago and we used that data to do the model tuning and

1 Verizon came back after the last hearing and I said
2 "I really would like to validate that you haven't
3 modified the network in any way" and they said they
4 hadn't, there hadn't been any site changes, and I
5 said "Before I go in front of the Board, I want to
6 make sure that this represents what I've got out
7 there," so they went out and did the drive test and
8 then provided that information to me. That's what
9 the -- the test that I gave you today was just to
10 show -- demonstrate that the tuning drive test data
11 that I used was still valid.

12 MR. MORIARTY: And the test you
13 referred to two years ago from the fire station,
14 that's at the new firehouse --

15 MR. STERN: Yes.

16 MR. MORIARTY: -- on Old Turnpike?

17 MR. STERN: Yes.

18 MR. MORIARTY: And that was a crane
19 test and the base station was at what height at that
20 location?

21 MR. STERN: Those base stations were,
22 I believe, 1 -- I'm thinking 90, 110, 130, something
23 like that, the different heights that they tested
24 there. Those tests, all I did with that information
25 was validate my model, that at those heights, my

1 model was pretty accurately represented. So I tuned
2 -- looked at that data, looked at the propagation
3 characteristics from there, said "I got the model
4 pretty much tuned in," used the drive test data on
5 here to make sure this is tuned in, and then I used
6 that to propagate at different heights for putting
7 up the tower at Melick Farm. But as the question
8 was asked and answered, I did not specifically do a
9 crane test at Melick Farm.

10 MR. MORIARTY: Okay. And the heights
11 at the fire station at 90, 110 and whatever else,
12 was that at feet above ground at that location --

13 MR. STERN: Yes.

14 MR. MORIARTY: -- or was that --

15 MR. STERN: Yes.

16 MR. MORIARTY: -- in reference to --

17 MR. STERN: Yes, it was feet above
18 ground level where the crane was placed.

19 MR. MORIARTY: Okay. And the test you
20 did in March, you still used the base station?

21 MR. STERN: We used the on-air cell
22 sites. That's all we used was the on-air cell
23 sites, no other -- no other transmitters were used,
24 it was just the on-air data today.

25 MR. MORIARTY: Okay.

1 MR. STERN: So what the network is
2 doing today, basically the plot on A-15, Map 1 of
3 the report. That's all that that shows, is it's
4 supporting that information.

5 MR. MORIARTY: And I guess I'm getting
6 to, when you say the minimum height of the antenna
7 would be 120 feet -- and that's based upon the
8 actual test that you've done or is that --

9 MR. STERN: No, that's based upon the
10 computer modeling.

11 MR. MORIARTY: Okay. In response to
12 our expert, if I could just go to your report on
13 Page 6, you talk about the antenna, you know,
14 proposed tower at 140 feet and the antenna will be
15 120 feet above ground.

16 MR. STERN: Yes.

17 MR. MORIARTY: Four antennas facing --
18 you know, for 360-degree coverage, four sets of
19 antennas, 12 antennas, yet I think I heard you say
20 before that you wouldn't provide antennas facing
21 south because of the site we have down off of 78 --

22 MR. STERN: That's correct.

23 MR. MORIARTY: -- providing all that
24 coverage north.

25 MR. STERN: That's correct.

1 MR. MORIARTY: So is that -- so what
2 your report says is it wouldn't be 360-degree
3 coverage, you're talking 270-degree coverage pushing
4 out.

5 MR. STERN: What I said is I will find
6 out, but it would be my recommendation not to do an
7 antenna pointing south, but what I told the expert
8 was I will go back and get that information, I'll
9 find out what the orientations are planned for this
10 site, but it would be -- if I was designing this
11 system and I was sitting with the radio frequency
12 engineer for Verizon as they were setting the final
13 parameters, I would not likely put an antenna to the
14 south because it would be overlapping too much with
15 the Tewksbury site, so it's most likely antennas are
16 pointed west, north and east, as opposed to
17 providing 360 coverage.

18 MR. MORIARTY: Okay. And then when
19 you were finishing your testimony on the analysis of
20 structures that you looked at, you said you spent
21 the better part of the year trying to get one of the
22 towers to work.

23 MR. STERN: Yes.

24 MR. MORIARTY: So what was done during
25 the better part of that year?

1 MR. STERN: Working -- the radio --
2 the site acquisition expert was pursuing, trying to
3 get meetings with the property owners, talk to
4 PSE&G, go through the process of trying to go
5 through that -- go through the process of trying to
6 get to those towers. We actually looked at going --
7 you know, once we eliminated all five towers, then
8 we looked at a new build and that's when we -- first
9 we looked at the volunteer fire company. The fire
10 company was the first place we looked at. But we
11 tried to exhaust the towers before we came down and
12 looked for a new -- to try to build a new tall
13 structure. The previous site that we built in
14 Tewksbury was the site I worked on several years
15 ago, the Fairmont -- the site they call "Fairmont"
16 up on Farmersville Road, it was an electric
17 transmission tower up there, so that was the last
18 time I was in front of this Board.

19 CHAIRMAN JOHNSTONE: Mike, we have to
20 stop.

21 MR. MORIARTY: Just one last question.
22 So when you started talking about the towers, you
23 referenced that you looked at six towers but then
24 you testified about five. Was that just a mistake
25 in your testimony or was there another tower that's

1 not part of your report?

2 MR. STERN: Let me count the towers we
3 looked at.

4 CHAIRMAN JOHNSTONE: One, two, three,
5 four, five.

6 MR. STERN: One, two, three, four,
7 five.

8 CHAIRMAN JOHNSTONE: Five towers.

9 MR. STERN: Five towers. We looked at
10 five towers.

11 MR. MORIARTY: And that's how many
12 towers you looked at, right?

13 MR. STERN: Yeah, five towers, we
14 looked at.

15 MR. MORIARTY: Okay. Thank you.

16 MR. STERN: You're welcome.

17 MR. MORIARTY: I have no further
18 questions.

19 CHAIRMAN JOHNSTONE: Okay. We will
20 have to stop the testimony tonight. Thank you, sir,
21 very much for coming in tonight, I appreciate it.

22 One last thing I'd like to recommend to
23 the Board, I'd like to recommend that our engineer,
24 Bill Burr, prepare an exhibit showing the Melick
25 Farm, the location of the proposed tower, and the

1 adjoining Historic District, the location of the
2 homes and businesses adjoining the applicant's
3 property and topography also should be shown; I'd
4 like to get an idea of what that looks like. Does
5 anybody object to having Bill do that?

6 MR. MORIARTY: Not at all.

7 MS. CZAJKOWSKI: No.

8 CHAIRMAN JOHNSTONE: Okay, Bill, can
9 you do that?

10 MR. BURR: Yes.

11 MR. BERNSTEIN: Could we maybe outline
12 what we would like from the RF engineer?

13 Unfortunately, he'll have to come back and I think
14 it's good if we outline what we're expecting him to
15 prepare.

16 CHAIRMAN JOHNSTONE: We could do that
17 and we'll also have Shana send a letter to confirm
18 it so that everybody's on the same page. Okay? So
19 why don't you start off, Dan.

20 MR. BERNSTEIN: Well, I'm going to
21 have our RF guy... I have one item. Do you want
22 to...

23 MR. RAHINKAMP: Mr. Chairman?

24 CHAIRMAN JOHNSTONE: Who's that?

25 (Mr. Rahenkamp raises hand)

1 CHAIRMAN JOHNSTONE: Yes, sir.

2 MR. RAHENKAMP: Couldn't we also ask
3 Mr. Stern to prepare equivalents of Map 2 using
4 other locations and let us understand the coverage
5 that those would provide?

6 CHAIRMAN JOHNSTONE: Is that the ones
7 that I was referring to?

8 MR. RAHENKAMP: Yeah.

9 CHAIRMAN JOHNSTONE: Well, I think
10 he's going to do that.

11 Do you understand what we're talking
12 about?

13 MR. STERN: Yes. You would like the
14 coverage, the proposed -- what would theoretically
15 be the coverage using our tool from Tower 12/4, the
16 Julian Gage building, and --

17 CHAIRMAN JOHNSTONE: The last tower
18 that you have on your thing which is up there.

19 MR. STERN: 13/4.

20 CHAIRMAN JOHNSTONE: Right. The point
21 I'm trying to make is I'm trying to look outside of
22 the box, so to speak. I'm trying to -- I understand
23 what you're company's trying to do, I'm just trying
24 to figure out a way of solving that issue, if
25 there's alternative ways of doing that -- okay? --

1 that is less obnoxious, from a visual standpoint,
2 for the township.

3 MR. BERNSTEIN: Did you --

4 MR. MENKES: Yes. Mr. Stern, I think
5 I asked for the search ring.

6 MR. STERN: Search ring, correct.

7 MR. MENKES: And then you were going
8 to go away and try and correlate the minus 120
9 operational path loss with the minus 80 dBm number
10 for me.

11 MR. STERN: Correct.

12 MR. MENKES: Okay.

13 MR. STERN: As well as antenna
14 orientations.

15 MR. MENKES: Yes. Yes. And,
16 actually, you may have answered the antenna
17 orientations --

18 MR. STERN: Right.

19 MR. MENKES: -- but if you could give
20 me the numbers.

21 MR. STERN: I still want to get that.

22 MR. MENKES: Yes.

23 MR. STERN: And I think that -- so
24 here are the things that I have on my list.

25 CHAIRMAN JOHNSTONE: Sure, go ahead.

1 MR. STERN: The coverage plots from
2 the three sites we just discussed, the search area
3 map, antenna orientations, the detailed calculation
4 for the operational path loss, and using a second
5 overlay instead of a second map on the maps. And I
6 have on here homes and pops covered by the site in
7 addition to, you know, with the new coverage, what
8 homes -- quantity of homes and pops that we're
9 covering.

10 MR. BERNSTEIN: Just one other thing,
11 Mr. Chairman.

12 You had an interesting map that -- I'm
13 sorry, it's a diagram that shows --

14 MR. STERN: What's the number on it?

15 MR. BERNSTEIN: A-16. It shows the
16 existing coverage. I believe there was a similar
17 document that was prepared with respect to the
18 firehouse study of existing coverage.

19 MR. STERN: Yes.

20 MR. BERNSTEIN: Yeah. Can we see that
21 as well?

22 MR. STERN: Sure.

23 MR. BERNSTEIN: And if that would be
24 plotted out in the same way.

25 MR. STERN: Yeah. It won't be the

1 same colors, unfortunately, but it will be the same
2 data --

3 MR. BERNSTEIN: Good.

4 MR. STERN: -- and we'll provide that.

5 MR. BERNSTEIN: That was in what year?

6 MR. STERN: 2010.

7 MR. BERNSTEIN: 2010 data. Thank you.

8 CHAIRMAN JOHNSTONE: Anything else the
9 Board needs at this time?

10 MR. MCGROARTY: Well, I was just going
11 to say, Mr. Chairman, as long as you're at it, tell
12 us how short the steeple is or how deficient in feet
13 the steeple that's existing is. Because your report
14 --

15 MR. STERN: All right, so if I
16 understand your question, the Chairman asked me to
17 propagate it at what we could do with the church
18 steeple if we replaced like for like --

19 MR. MCGROARTY: Right.

20 MR. STERN: -- and you're asking me,
21 "If, David, you could get special dispensation from
22 the Historical District and you can put a new tall
23 steeple there, how tall would you need it to be to
24 serve the gap in coverage?"

25 MR. MCGROARTY: Yeah.

1 MR. STERN: All right.

2 MR. MCGROARTY: Thank you.

3 CHAIRMAN JOHNSTONE: Anything further
4 from the Board?

5 MR. MACKIE: Yeah. If he's going to
6 -- if he's going to generate new coverage maps,
7 you're going to use the EDX model; is that correct?

8 MR. STERN: Yes.

9 MR. MACKIE: Are you going to use the
10 drive test data that you just generated, as opposed
11 to the non-generated model or non-calibrated model
12 of data you've presented on Map 2 already?

13 MR. STERN: Um --

14 MR. MACKIE: You used the drive test
15 data to calibrate the model, correct?

16 MR. STERN: I used the drive test data
17 to calibrate the model so I'm using that model to do
18 that.

19 MR. MACKIE: Okay. Are you going to
20 use the drive test data for this new model of
21 coverage outputs?

22 MR. STERN: As I stated, the data that
23 I've got from March 14 validated the tuning that I
24 did.

25 MR. MACKIE: So, in other words, there

1 was no change --

2 MR. STERN: There was no change.
3 That's why it was important that before I walk back
4 in here, if there had been a change, I would have
5 had to come back with new coverage plots and come up
6 with another revision. I wanted to make sure before
7 I came in here that I had real data that
8 substantiated that what I had here was accurate so
9 that's all that data did. So the model was tuned
10 correctly so I feel very comfortable using the model
11 as it's set right now to propagate the different
12 structures that the Chairman has asked me to
13 propagate and that that will be -- well represent
14 what you will get from our radio frequency coverage
15 from those sites, and I will use different color
16 overlays for each one of these sites so you can see
17 which one is which.

18 CHAIRMAN JOHNSTONE: Good.

19 All right, next thing, we have to come
20 up with a next date.

21 MS. GOODCHILD: Next available date --

22 MR. SIMON: Mr. Chairman -- I'm sorry
23 to interrupt but, Mr. Chairman --

24 CHAIRMAN JOHNSTONE: Yes, sir.

25 MR. SIMON: -- just to be --

1 MR. BERNSTEIN: Give your name for the
2 record, Rob.

3 MR. SIMON: Robert Simon from Herold
4 Law. I appeared at the last hearing.

5 Just so that the request is complete so
6 not to waste time for the public or the Board, we
7 would also request two things in particular. Number
8 one is that if they can -- if the applicant can
9 prepare an overlay showing the propagation plots as
10 put forth for the first time tonight against what's
11 already been represented to show what areas of
12 coverage via the propagation tool are proposed to be
13 covered by the applicant in relation to what the
14 propagation plots show. And also for those plots, I
15 don't believe that the streets are even identified
16 on A-16. While doing that, if they could also show
17 the names of the streets, that would certainly be
18 helpful, to have a composite exhibit. And also --

19 MR. MEESE: Stop right there. I want
20 to make sure we understand question number one
21 because I don't --

22 MR. STERN: I have no idea what you
23 just asked me to do. All I heard was that you want
24 streets on the map. That's all I got.

25 MR. SIMON: What I want is A-16 --

1 MR. BERNSTEIN: Rob? Rob, our LUA has
2 streets on my copy if you want to do it at the end
3 of the meeting.

4 MR. SIMON: What's that?

5 MR. BERNSTEIN: Our administrator had
6 marked for me the streets on A-16. If you want to
7 copy it, you're free to do so.

8 MR. SIMON: Well, I just would like to
9 have the applicants do that and show an additional
10 map, pursuant to what he's already shown in his RF
11 analysis and report dated December 3, 2013, to show
12 the relationship between the coverage with the
13 Oldwick site, Map 2, overlaid by the data showing up
14 on A-16.

15 CHAIRMAN JOHNSTONE: Do you understand
16 his question?

17 MR. STERN: I think so. I'm going to
18 -- the best I could do is I could take that data and
19 enlarge it and try to map it up with the board so
20 that it can show both pieces of data simultaneously.
21 I'm not sure what that does but I'll do it.

22 MR. SIMON: What it -- well, what it
23 does is what it doesn't. Every application in the
24 State of New Jersey for all these carriers, based on
25 the testimony, they do a propagation based on the

1 tool to verify it with drive test data --

2 MR. BERNSTEIN: Wait, let's not argue.

3 MR. SIMON: I'm not arguing.

4 MR. BERNSTEIN: He said --

5 MR. SIMON: I'm not arguing.

6 MR. BERNSTEIN: -- he's going to give
7 it to you.

8 CHAIRMAN JOHNSTONE: I don't fault him
9 for that, he's just trying to explain what he's
10 looking for, and as long as you understand what he
11 wants, that's fine.

12 MR. STERN: I'm going to make a large-
13 scale overlay that I can put on this board of that
14 data. Is that going to be sufficient for you?

15 MR. SIMON: Well, I -- I would like --
16 certainly, the public would like that, in addition
17 to which, why it can't be part of or amendment to
18 your RF report -- there's already two maps there; if
19 you just kind of impose as an additional map just
20 the drive test data. Very simple.

21 MR. STERN: I'll try but --

22 CHAIRMAN JOHNSTONE: Okay. Do what
23 you can.

24 MR. STERN: I don't know if I can get
25 all the powers that I work with to do it but I will

1 try.

2 MR. SIMON: Everybody else does it.
3 And also, I'm assuming that all the data and
4 information, reports, documents that have been
5 requested of the applicant to be submitted will be
6 submitted ten days prior to the next hearing so that
7 it will be available to the Board for -- I mean to
8 the public for review.

9 MR. STERN: That's my goal.

10 MR. BERNSTEIN: You should ask the
11 applicant.

12 MR. STERN: That's my goal.

13 MR. SIMON: Thank you.

14 CHAIRMAN JOHNSTONE: Thank you, sir.
15 Okay, what's the next date?

16 MS. GOODCHILD: Next date available is
17 July 2.

18 CHAIRMAN JOHNSTONE: July 2, is that
19 satisfactory?

20 MR. MEESE: July 2, I will be in the
21 State of Washington --

22 CHAIRMAN JOHNSTONE: That's all right,
23 we can go without you.

24 MR. MEESE: -- enjoying a wedding on
25 an island.

1 CHAIRMAN JOHNSTONE: We can go on
2 without you.

3 MS. GOODCHILD: The next date is July
4 16.

5 CHAIRMAN JOHNSTONE: July 16. Is that
6 satisfactory?

7 MR. BERNSTEIN: Can your RF guy make
8 it?

9 MR. STERN: That's what I'm looking
10 for.

11 (brief pause)

12 MR. STERN: I'm good.

13 CHAIRMAN JOHNSTONE: All right, are we
14 going -- July 16, are we going to continue with this
15 witness or are we going back to your other
16 witnesses?

17 MR. MEESE: That's a great question.
18 I'm going to hope to continue with this witness so
19 we can --

20 CHAIRMAN JOHNSTONE: All right. Would
21 you let us know in advance --

22 MR. MEESE: Sure.

23 CHAIRMAN JOHNSTONE: -- who you're
24 planning on bringing for that meeting?

25 MR. MEESE: We hope to have Mr. Stern

1 as well as --

2 CHAIRMAN JOHNSTONE: By the way,
3 folks --

4 MR. MEESE: -- Mr. Kronk.

5 CHAIRMAN JOHNSTONE: -- the next
6 meeting will be here at this location.

7 MR. BERNSTEIN: No new notice.

8 CHAIRMAN JOHNSTONE: And no new
9 notice.

10 (Hearing adjourned at 10:13 p.m.)

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C E R T I F I C A T E

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