May 1, 2012

Mr. Shaper,

We represent NY CLEC LLC, a subsidiary of Crown Castle International Corporation, and appreciate the opportunity to provide this information about Crown's proposed Long Island distributed antenna network (DAS). Specifically, we hope to achieve here a clear explanation of why DAS is proposed for the Village of Old Brookville and how DAS works.

DAS is installed in public rights of way and governed by a Right of Way (ROW) Agreement for access to the utility corridor. This holds true for the Village. For the Village, this submittal is provided in support of Crown's application dated October 3, 2011, our correspondence of February 28, 2012, April 16, 2012 and our appearances at the September 19, 2012, November 21, 2011 and March 26, 2012 Board of Trustees meetings.

We are doing everything we can to provide information that helps the public and Board know that their questions have been answered. The Village had requested to receive information in a format that could be posted on the Village's website. Here, we are responding to questions about radio frequency. These responses have been prepared for the Village by Crown's radio-frequency engineering experts. Your questions are answered below.

1. **What are WLANs?**
   WLAN stands for Wireless Local Area Network. Wireless networks use radio waves to transmit information between computers, smart phones and tablets and wired router stations which are typically connected to the internet. WLAN devices using WiFi (Wireless Fidelity) technology are sold at retail computer and office supply stores and supplied by internet access providers (such as Verizon, Cox, CableVision, Comcast).

2. **What does WLAN 32, 100, 160, 200mw stand for?**
   The number next to WLAN (32, 100, 160, 200 mili-watt or mw) refers to the radio frequency (RF) power that is emitted by the WLAN (wireless router) device typically installed in homes and offices. WLAN devices are licensed by FCC to operate at 32 mw, 100 mw, 160 mw, 200 mw. The power emitted by an RF device is often called effective radiated power (ERP). Generally, the greater the RF power, the greater the range of the wireless device.

3. **What are the definitions of UMTS Class 4, 3, 2?**
   Universal Mobile Telecommunications System (UMTS) is technical standard for third generation (3G) mobile cellular networks. UMTS is derived from the Global System for Mobile Communications (GSM) standard used for 2G networks. UMTS standards include specifications for all equipment and mobile handsets used in both UMTS and GSM networks. The maximum power levels (or ERP) for all mobile handsets in UMTS/GSM networks are shown in the table below:

3GPP Power Class	Technology		Max. Power
1	UMTS/3G	GSM/2G	2.0 Watts
2	UMTS/3G		0.5 Watt (500 mili-watt)
3	UMTS/3G		0.25 Watt (250 mili-watt)
4	UMTS/3G		0.125 Watt (mil-watt)

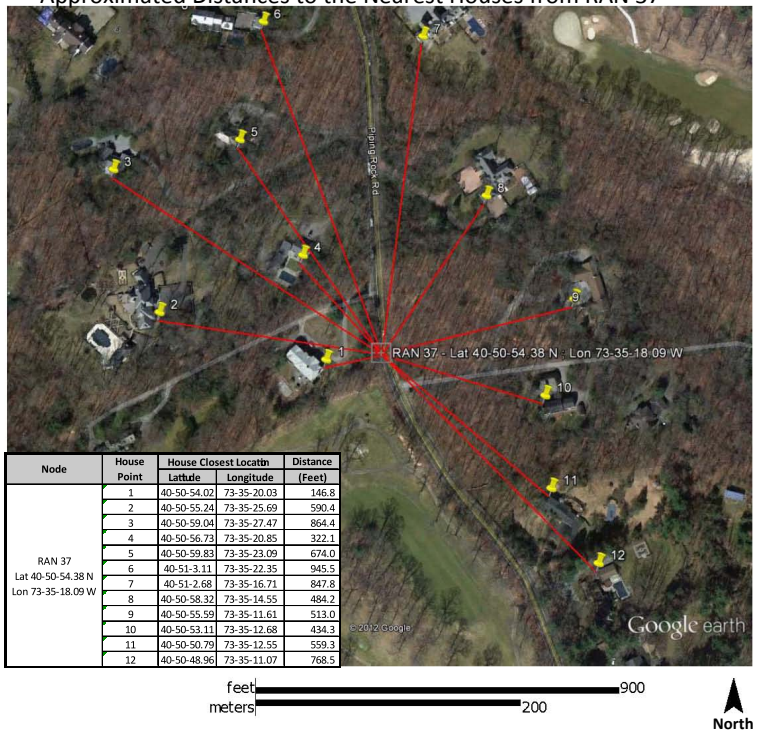
4. **Can you provide some examples of UMTS 2 watt, GSM 850 1 watt, GSM 1900 handset models and type?**
   Generally, handset manufacturers do not publish the power class for handsets. Handsets are designed to operate in different power classes, depending on the frequency band and the technology used during the transmission (i.e. 3G, 2G, etc). For example, the Blackberry Curve 9800 has a model that works on UMTS 2 watt, GSM 850/ GSM 1900 1 watt.

5. **What are the highest power antenna installations you will install in the Village?**
   Based on the information we have received (to date) from each wireless carrier, the maximum cumulative effective radiated power (ERP) is 19.2 Watts for the transmitters operating in 850 MHz and 196.6 Watts for those operating in 1900 MHz. The power level of the proposed equipment is limited and cannot be adjusted to operate (through intentional tuning or mechanical error) at a power level in violation of FCC exposure limits. In the Right-of-Way Agreement proposed to the Village, Crown would need the Village's approval to make a material change to the size and nature of the equipment on each pole.

6. **On the "RF Emissions Diagrams for Long Island Triangle", RF exposure is compared to % of FCC limits. Please provide those FCC limits in µW/cm2.**
   - Frequency Range 850 MHz —
     Maximum (100%) Permissible Exposure level for General Public (per FCC Bulletin 65) is 590 µW/cm2
   - Frequency Range 1,900 MHz —
     Maximum (100%) Permissible Exposure level for General Public (per FCC Bulletin 65) is 1000 µW/cm2

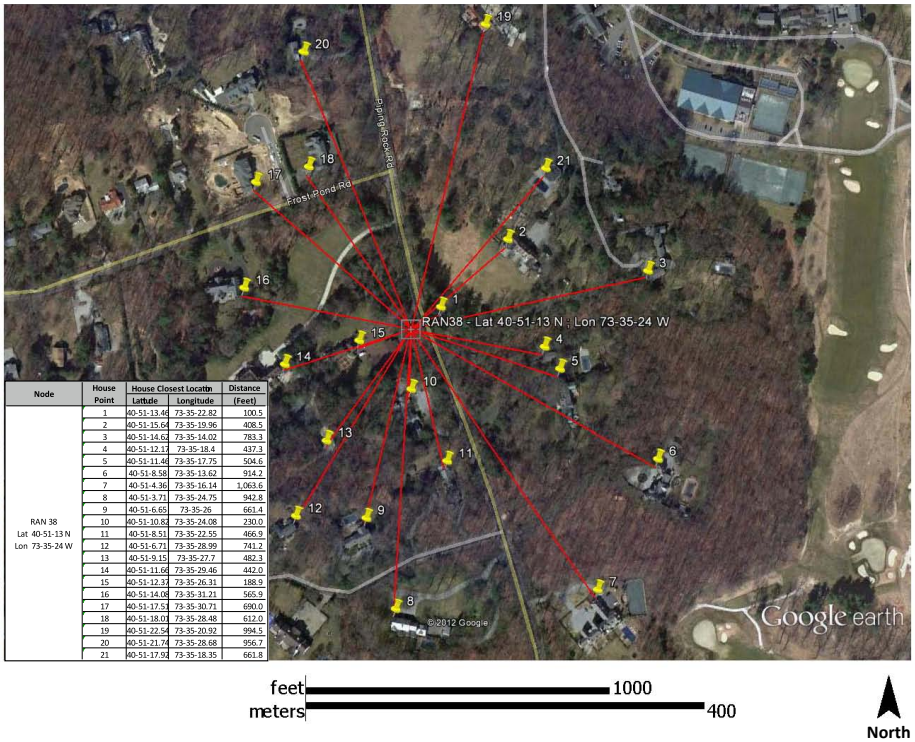
7. **What are the distance from any installation to a home in the Village?**
   Please refer to the images below.

Approximated Distances to the Nearest Houses from RAN 37



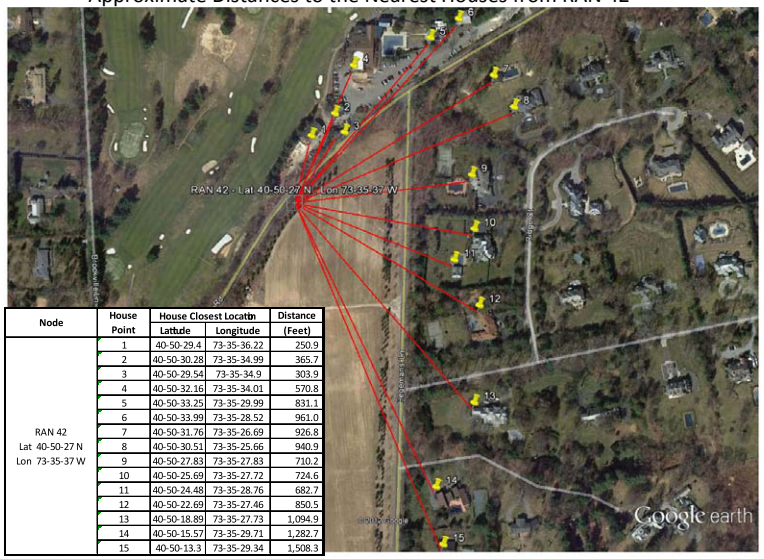
Node	House Point	House Closest Locatin Lattude	Longitude	Distance (Feet)
RAN 37 Lat 40-50-54.38 N Lon 73-35-18.09 W	1	40-50-54.02	73-35-20.03	146.8
	2	40-50-55.24	73-35-25.69	590.4
	3	40-50-59.04	73-35-27.47	864.4
	4	40-50-56.73	73-35-20.85	322.1
	5	40-50-59.83	73-35-23.09	674.0
	6	40-51-3.11	73-35-22.35	945.5
	7	40-51-2.68	73-35-16.71	847.8
	8	40-50-58.32	73-35-14.55	484.2
	9	40-50-55.59	73-35-11.61	513.0
	10	40-50-53.11	73-35-12.68	434.3
	11	40-50-50.79	73-35-12.55	559.3
	12	40-50-48.96	73-35-11.07	768.5

Approximate Distances to the Nearest Houses from RAN 38



Node	House Point	House Closest Locatin Lattude	Longitude	Distance (Feet)
RAN 38 Lat 40-51-13 N Lon 73-35-24 W	1	40-51-13.46	73-35-22.82	100.5
	2	40-51-15.64	73-35-19.96	408.5
	3	40-51-14.62	73-35-14.02	783.3
	4	40-51-12.13	73-35-18.4	437.3
	5	40-51-11.46	73-35-17.75	504.6
	6	40-51-8.58	73-35-13.62	914.2
	7	40-51-4.36	73-35-16.14	1,063.6
	8	40-51-3.71	73-35-24.75	942.8
	9	40-51-6.65	73-35-26	661.4
	10	40-51-10.82	73-35-24.08	230.0
	11	40-51-8.51	73-35-22.55	466.9
	12	40-51-6.71	73-35-28.99	741.2
	13	40-51-9.15	73-35-27.7	482.3
	14	40-51-11.66	73-35-29.46	442.0
	15	40-51-12.33	73-35-26.31	188.9
	16	40-51-14.08	73-35-31.21	565.9
	17	40-51-17.53	73-35-30.71	690.0
	18	40-51-18.07	73-35-28.48	612.0
	19	40-51-22.54	73-35-20.92	994.5
	20	40-51-21.74	73-35-28.68	956.7
	21	40-51-17.93	73-35-18.35	661.8

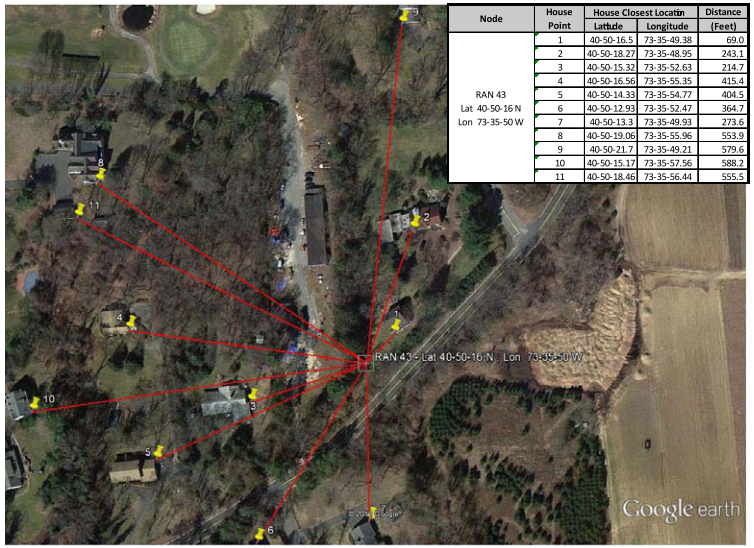
Approximate Distances to the Nearest Houses from RAN 42



Node	House Point	House Closest Locatin Latitude	Longitude	Distance (Feet)
RAN 42 Lat 40-50-27 N Lon 73-35-37 W	1	40-50-29.4	73-35-36.22	250.9
	2	40-50-30.28	73-35-34.99	365.7
	3	40-50-29.54	73-35-34.9	303.9
	4	40-50-32.16	73-35-34.01	570.8
	5	40-50-33.25	73-35-29.99	831.1
	6	40-50-33.99	73-35-28.52	961.0
	7	40-50-31.76	73-35-26.69	926.8
	8	40-50-30.51	73-35-25.66	940.9
	9	40-50-27.83	73-35-27.83	710.2
	10	40-50-25.69	73-35-27.72	724.6
	11	40-50-24.48	73-35-28.76	682.7
	12	40-50-22.69	73-35-27.46	850.5
	13	40-50-18.89	73-35-27.73	1,094.9
	14	40-50-15.57	73-35-29.71	1,282.7
	15	40-50-13.3	73-35-29.34	1,508.3

feet 1000
meters 400
North

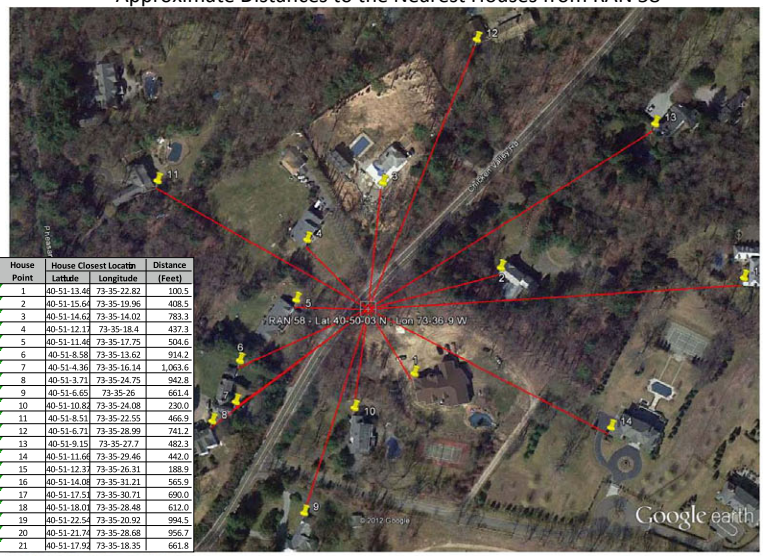
Approximate Distances to the Nearest Houses from RAN 43



Node	House Point	House Closest Locatin Latitude	Longitude	Distance (Feet)
RAN 43 Lat 40-50-16 N Lon 73-35-50 W	1	40-50-16.5	73-35-49.38	69.0
	2	40-50-18.27	73-35-48.95	243.1
	3	40-50-15.32	73-35-52.63	214.7
	4	40-50-16.56	73-35-55.35	415.4
	5	40-50-14.33	73-35-54.77	404.5
	6	40-50-12.93	73-35-52.47	364.7
	7	40-50-13.3	73-35-49.93	273.6
	8	40-50-19.06	73-35-55.96	553.9
	9	40-50-21.7	73-35-49.21	579.6
	10	40-50-15.17	73-35-57.56	588.2
	11	40-50-18.46	73-35-56.44	555.5

feet 600
meters 200
North

Approximate Distances to the Nearest Houses from RAN 58



Node	House Point	House Closest Locatin Latitude	Longitude	Distance (Feet)
RAN 38 Lat 40-51-13 N Lon 73-35-24 W	1	40-51-13.46	73-35-22.82	100.5
	2	40-51-15.64	73-35-19.96	408.5
	3	40-51-14.62	73-35-14.02	783.3
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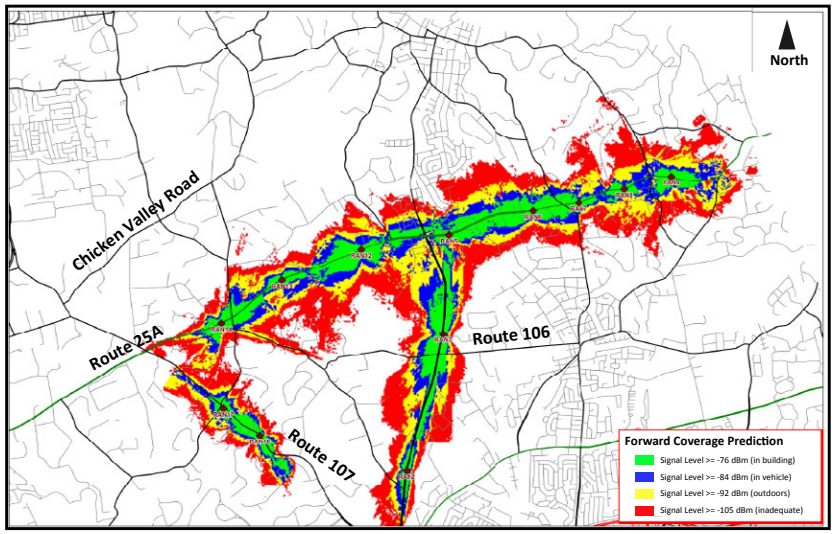
	13	40-51-9.15	73-35-27.7	482.3
	14	40-51-11.66	73-35-29.46	442.0
	15	40-51-12.37	73-35-26.31	188.9
	16	40-51-14.08	73-35-31.21	565.9
	17	40-51-17.51	73-35-30.71	690.0
	18	40-51-18.01	73-35-28.48	612.0
	19	40-51-22.54	73-35-20.92	994.5
	20	40-51-21.74	73-35-28.68	956.7
	21	40-51-17.92	73-35-18.35	661.8

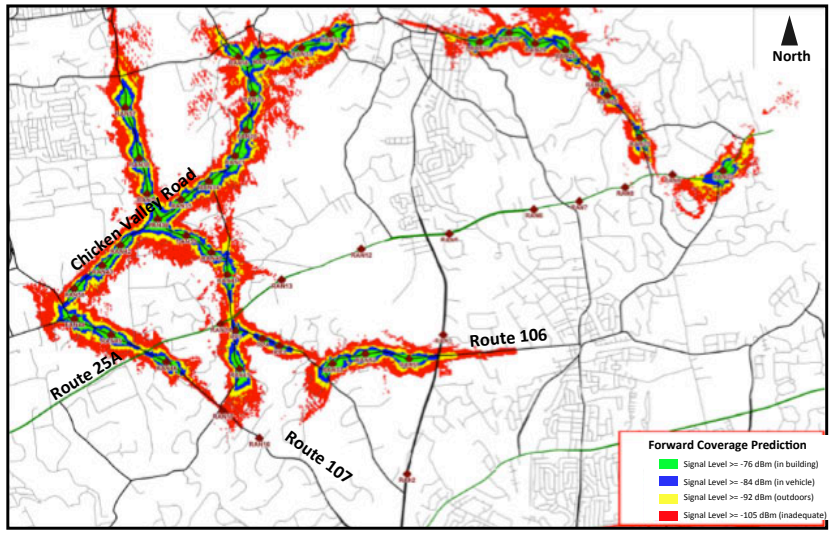
feet 800
meters 200
North

8) Can you show the street names on the Predicted Coverage Maps.
Please refer to the images below.

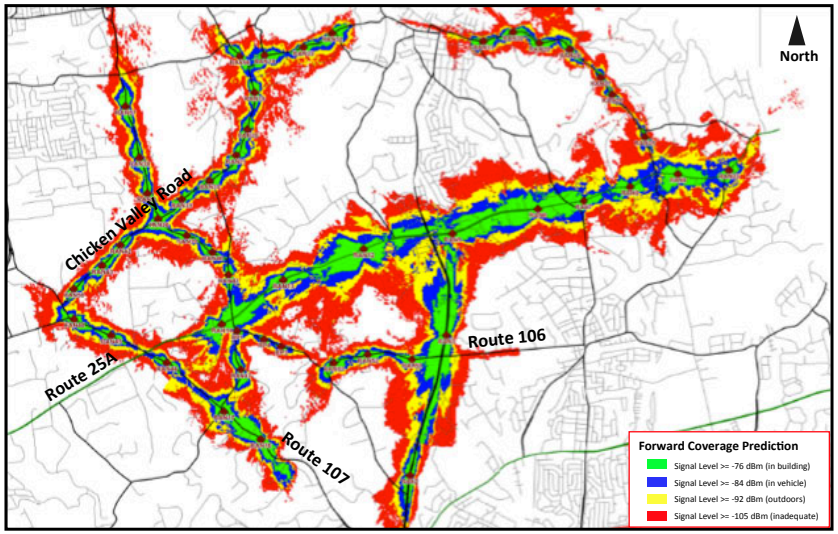
Projected RF Coverage – Phase I



Projected RF Coverage – Phase II



Projected RF Coverage – Phase I & II



We look forward to further discussion and to helping the Village's residents achieve the level of wireless communications that they deserve.

CROWN CASTLE