STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

NEW CINGULAR WIRELESS PCS, LLC	:	DOCKET NO. 510
D/B/A AT&T AND TARPON TOWERS II,	:	
LLC APPLICATION FOR A CERTIFICATE	:	
OF ENVIRONMENTAL COMPATIBILITY	:	
AND PUBLIC NEED FOR THE	:	
CONSTRUCTION, MAINTENANCE, AND	:	
OPERATION OF A	:	
TELECOMMUNICATIONS FACILITY	:	
LOCATED AT 92 GREENS FARMS ROAD,	:	
WESTPORT, CONNECTICUT	:	SEMPTEMBER 6, 2022

PREFILED TESTIMONY OF DAVID MAXSON, WCP
(TOWN OF WESTPORT)

Q1. Mr. Maxson, please summarize your professional background and current occupation.

A1. My work as a wireless engineering technology consultant is known to the Council. My first appearance before the Council was as the expert for the Town of Marlborough (Docket 169, October 1995) in which the town, the Council and the applicant agreed to the use of an alternative site. I am a certified IEEE Wireless Communications Engineering Technology professional, hold an FCC General Radiotelephone license and a Construction Supervisor license (MA). I have participated as an expert in wireless telecommunication siting matters in over a thousand public meetings of regulatory entities (municipal and state) since 1988. My C.V. is attached.

Q2. Have you reviewed the application in this matter?

A2. Yes. In addition, I have reviewed other submissions on the record and I watched the first session of the public hearing on August 9, 2022.

Q3. Do you have opinions on the proposed facility and any possible alternatives?

A3. Yes. There are alternatives that are likely to be more acceptable to the Town of Westport.

Q4. Do you have any other opinion on the proposed tower facility?

A4. To the extent some alternatives may require more time and patience to bring to fruition, the evidence suggests there is no emergency, no urgency that needs to be addressed by approving the proposed tower.

If the tower were approved, the proposed height is unnecessary.

Q5. What are the alternatives that you consider to be viable?

A5. The Town has expressed the concern that developing a tower on a lot that is in residential use is counter to principles of good planning and land use. The five towers used by AT&T in Westport are on land that is not in residential use. One site is state-owned. One is owned by Verizon Wireless. Two are Town of Westport owned. One is privately owned. See Attachment 4 for details.

Using DOT property and/or utility poles in the public way would avoid the precedent of placing a tower on a residential property in Westport.

AT&T could pursue a tower on Connecticut Department of Transportation ("DOT") land nearby.

AT&T could use small cells to address its claimed gap, especially on Interstate 95 ("I-95").

Q6. Are you aware of Tarpon Towers' efforts to communicate with DOT?

A6. Yes. I read the information on the record.

Q7. Are you aware of any AT&T efforts to communicate with DOT about this area?

A7. No.

After a cursory review of Council records on line, it appears AT&T is a tenant of DOT at other locations. Therefore, it is likely that AT&T already has a state-wide master lease agreement with DOT. Even though AT&T has been relying on Tarpon's choice of proposed site, AT&T could have engaged DOT directly under the terms of the DOT program. There is nothing in the record to indicate AT&T made any effort to pursue this solution. According to the record, AT&T was following Tarpon's lead in 2013 and again in 2019 relative to the 92 Greens Farms Rd site. It is AT&T that desires to improve coverage in the area, but relies solely on the initiative of Tarpon. Tarpon is just one potential means to that end.

Q8. Are you aware of any Verizon efforts to pursue a location on DOT land?

A8. No. Verizon indicates in testimony that they have relied on the efforts of Tarpon.

Q9. Are you aware of any efforts of the Town of Westport to pursue a location on DOT land?

A9. Yes, I obtained information about the DOT Wireless Communications Facilities Program and passed it on to the Town. The Town was already in contact with DOT and I answered Town questions as they continued their dialog with DOT.

Q10. What do you know about the DOT wireless tower program?

A10. I found CONN DOT information on the Siting Council's website. I understand DOT has a policy of making property available for lease to wireless carriers and tower developers. The Council quotes a DOT press release that says:

"This program envisions any interested Applicant to enter into a Master License Agreement (MLA) in order to be eligible to install, operate and maintain a monopole antenna tower at sites that will be conceptually approved on a case by case basis. If ConnDOT conceptually approves an individual site, the Applicant must make formal concurrent application to the Connecticut Siting Council and ConnDOT for Wireless Communications Facility approval. Upon the Applicant's receipt of site approval by the Connecticut Siting Council, an Individual Site Agreement (ISA) will be signed by the applicant and ConnDOT… To the extent feasible and in accordance with ConnDOT Policy Statement No. E&H.O.-53, the Department intends to work cooperatively with the Connecticut Siting Council and the Wireless Telecommunications Industry to improve communications coverage and capacity within Connecticut."

Q11. What DOT location would be suitable for a cell tower?

A11. There is DOT property along Hales Road (Attachment 1, parcel MBLU identifier D06/ / 023/000 /) with vacant, wooded land south of the railway. I have checked Westport GIS for indications of wetlands. The DOT land along Hales Rd is predominantly upland. There is an access driveway from Hales Rd to the railroad corridor, crossing the wooded area. This could be an ideal location to use an existing driveway to access a tower site and avoid a new "curb cut" off Hales Rd.

Moreover, the railroad tracks are straddled by tall electrical stanchions that create a visual environment in which a new cell tower would blend. As far as there being electrical stanchions along the railway, this is not an obstacle to a new cell tower on undeveloped land nearby. I was design engineer and subject matter expert for a wireless development project on the Amtrak corridor in Delaware and Pennsylvania. We built wireless towers on the wayside, an appropriate distance from the electrical stanchions.

Finally, the DOT land has the advantage of being closer to the center of the AT&T search ring than the proposed site is.[1] The ground elevation on the DOT site[2] is at least as high as the proposed site.[3] There is no obstructing intervening terrain between the two sites. Based on the inclusion of the DOT site in the AT&T search ring and on my experience modeling and measuring radio signal propagation, a tower of similar height at the DOT site will provide substantially the same coverage as the proposed tower.

Q12. Does AT&T demonstrate an urgent need for a new facility?

A12. No. Based on the evidence in the record, AT&T has no problem with dropped calls. Indeed, the AT&T signal level targets (-83 and -93 dBm RSRP) are more indicative of data service quality objectives than phone service quality. For example, AT&T acknowledges that cell phones will obtain "a signal level sufficient to provide coverage and offer service" as low

[1] See AT&T search ring map, Attachment 1, August 3, 2022 Response to Westport Interrogatories #3 and #5
[2] Westport GIS shows elevations between 18 and 29 feet AMSL on the DOT wooded area
[3] 19 ft AMSL ± according to the site plans in Application Exhibit G

as -113 dBm.[4] The point of this observation is to remind the Council that the areas shown in white on the AT&T existing coverage maps are not truly "gaps" in service. They are areas where the current level of service is lower than their current design targets. This helps explain how AT&T does not have a call-drop problem to speak of.

As for the capacity issue, AT&T's response to questions about providing evidence of any capacity issues reveals they do not have a capacity problem with their existing sites facing the proposed facility. The Council asked[5] AT&T, "What nearby wireless facilities (or sectors) are nearing capacity limits?" AT&T volunteered that only one sector in the surrounding area was at or approaching capacity – the "CT2132 alpha sector." AT&T claims that "in addition to adding coverage in the area, we expect the proposed site to offset the capacity needs of CT2132 Alpha in the near term."

This statement raises two concerns. First, the location of CT2132 is to the northwest of the proposed site and there is another facility (CT5278) between the two. See Attachment 2. Moreover, an alpha sector is traditionally generally northerly facing, which is not in the direction of the coverage area of the proposed facility. (Markup on attachment 2) It is difficult to imagine how the proposed facility would provide any relief to the CT2132 Alpha sector.

Based on the foregoing, there is no urgent capacity crunch that the proposed facility would relieve.

The second concern with the AT&T response is that AT&T appears conflicted as to what its goal is. In the answer above, the bare thread of a potential for capacity relief of one distant sector pointed in the wrong direction is exposed as a needed capacity gain. However, this gain is downplayed with the introduction, "in addition to adding coverage in the area…" Apparently, capacity is not the driver, but coverage is.

However, AT&T answered another question[6] the other way, indicating capacity is the issue: "High speed data service is by far the driver of AT& T's wireless network buildout. Statistics on dropped calls and ineffective attempts pertain only to voice calls, so they are no longer significant measures of substandard service. Data capacity, as discussed in the response to Question 36, is now the key determinant of quality of service."

There is one way to interpret these contradictions – it seems AT&T wants to increase data capacity to the area, but the desire is not driven by any capacity crunch in adjacent facilities. Using their words, AT&T provides no "significant measure of substandard service." They rely instead on coverage maps to imply capacity benefits. This further supports the conclusion that while this objective may be laudable, it lacks urgency. AT&T

[4] See for example, New Cingular Wireless PCS (AT&T) Required Notification to the FCC of satisfaction of buildout requirements for 700 MHz C Block license WPWV368 (November 2018)
[5] Question #36, response to Council's interrogatories, August 1, 2022
[6] *Ibid.* Question #33

can afford to spend more time getting the facility placement right from the perspective of the Town of Westport.

Q13. While AT&T is a co-applicant, Verizon is an intervenor. Have you developed an opinion about Verizon's needs in this area?

A13. Yes. Verizon's needs are even lower priority than AT&T's. Verizon's approach to this area of Westport is a good case study for ways to use small cells to address small problems. Verizon admits it is using the small cells "to provide coverage relief along portions of I-95."[7]

Q14. What is your understanding of the sequence of events with respect to Tarpon and Verizon?

A14. Tarpon testified that Tarpon selected the 92 Greens Farms Road site in 2011, while Verizon says it established a search ring centered on the site when Tarpon proposed it to Verizon in 2016. Verizon did not sign on as a co-applicant in the present matter and chose to intervene on June 7, 2022.

It is instructive to note that Verizon solved their coverage issue in 2016 by installing a small cell in June of 2016 and another in July 2017 (SC2, Hales Rd and SC2A, Hillspoint Rd). If Verizon had chosen in 2016 to use the tower, Tarpon and Verizon could have filed a co-application in 2016. Instead, Verizon was content to install small cells to solve its problem more quickly and more cheaply.

Verizon's use of small cells and its inaction on the tower between 2016 and this past June confirms that the proposed facility is not a priority.

Q15. What is your opinion of the data Verizon provided regarding its coverage needs?

A15. The information provided in the July 28th response to the Council's interrogatories is conclusory.

Call drop data does not indicate where the calls are dropping or why. There is one spike in the call drop data (p6) that is significantly above 1% (July 1st, 2.5%) which could have happened in numerous places across the state (not just at Westport CT Beta sector) because it is a notorious high-travel day preceding the July 4th weekend. It is not indicative of typical conditions.

I also note an exaggeration. Verizon asserts it has a 1.5% drop rate on the Westport CT Beta sector (pg 6). The associated graph is nearly illegible. I interpolated the data points from the graph lines and averaged them. I got an average of 1.09%, which is essentially at their tolerance. It is not the 1.5% that their narrative claims. Even if it were 1.5%, it is not a sign of an urgent problem in need of the proposed solution.

As with AT&T, Verizon presents only one sector of one cell site as evidence of a capacity problem that needs relief. Unlike AT&T, Verizon relied on call-failure data to make its

[7] Question #6, Cellco August 2 response to Westport interrogatories

case. Call failures can result from high volume of simultaneous users (capacity) but can also occur in pockets of weak signals (coverage). Verizon has made no presentation that demonstrates how the proposed facility would address Westport CT Beta call drops. Moreover, there are roughly five cell sites and three small cells surrounding the proposed facility, and only the one sector is presented as a (minor) problem.

Q16. Do you think the DOT site would work for Verizon?

A16. Yes. The Hales Rd DOT land is between the two Verizon small cells located along I-95 at the Hales Rd and the Hillspoint Rd crossovers. The Verizon search ring is centered on the proposed site. This is because Verizon bypassed its site acquisition search process to create a search ring around the proposed site. Nevertheless, the Verizon search ring incorporates the Hales Rd DOT land.

Q17. What is your reaction to AT&T and Verizon responses regarding the use of small cells in this area?

A17. It is a typical oversimplification. Verizon says the existing small cells "provide coverage relief along portions of I-95" but do not provide capacity relief to Westport CT Beta sector and have a "small (0.15 mile) coverage radius."[8] They further assert that small cells have "a very limited capacity to handle only a few users at a time."

AT&T asserts "This area of Westport does not have the same usage patterns and density like Bridgeport, New Britain, Waterbury, Danbury and New London."[9] Yet Verizon found it useful to install small cells to address the obvious problem of I-95 coverage. AT&T could, too.

AT&T also suggests that "small cells are generally limited to PCS and AWS frequencies which further limits capacity and coverage for primary service." This problem is further complicated by the complaint that "If 700 MHz is deployed on utility pole mounted small cells, then only 700 MHz can be deployed and only one of the two available 700 MHz carriers can be deployed due to equipment limitations."

These are self-imposed limitations. My Attachment 3 shows an actual flow diagram of a multiband small cell antenna being fed with ten signals on ten frequencies: 700 (qty 4), 850 (1), 1900 (3) and 2100 MHz (2). I reviewed this design for RF safety compliance in Massachusetts. This illustration is from a multi-provider shared-antenna installation, but it shows that a single provider could equip a small cell antenna with numerous radios on multiple frequencies. This shows that the small cell antenna is not the limitation it is made out to be. The carriers have more flexibility with their small cells than they admit.

The emergency powering of small cells is also raised as a concern. They can be equipped with batteries and remain within the dimensional limits of small cells imposed by the FCC. Remote plugs for portable generators for longer term outages are also available. For

[8] Question #6 response to Westport interrogatories.
[9] Question #30 response to council interrogatories, August 1, 2022.

example, the small cells in Chilmark, Massachusetts[10] are delivered portable generators when longer power outages occur on that part of Martha's Vineyard.

Moreover, the carriers suggest that if this area's capacity were augmented by small cells, a power outage would mean a service outage. However, there is an existing level of wireless service in this portion of Westport already. That level of coverage is presently providing the emergency communications that might be needed during a weather emergency The existing conditions in Westport are unlike those in the recent Kent tower proposal.

Q18. If the tower were approved, are there mitigations to consider?

A18. Yes, the tower height can be reduced without material impact. Also, if camouflage is desired by the Town, it is in play for this facility.

Q19. What are your findings about tower height?

A19. The applicants responded to the Council's question 29, saying "The proposed antenna centerline height of 120' is the lowest height at which AT&T could achieve its wireless service objectives." Clearly, this answer was written without viewing the Height Analysis maps requested by the Town. The Town asked AT&T and Verizon to provide map data on the differences in coverage among a set of reduced tower heights.

AT&T's contractor, C-Squared Systems, provided coverage maps at 700 MHz. I refer to the one showing the differences in -93 dBm coverage.[11] The AT&T approach to its map presentation is convenient because it layers coverage for heights at 120, 110 and 100 feet on a single map. However, there is no data for lesser heights. There is no existing coverage, so one must compare with other maps.

AT&T also responded to the Council's interrogatories regarding areas and street miles of coverage of the proposed facility. This was more or less as requested by the Council but is presented in a difficult to consume format. The Height Analysis map provides a clear answer.

The differences in AT&T -93 dBm coverage at the reduced height of 100 feet are inconsequential. They are very small and mostly on the fringes where there is already coverage from other sites.

The applicants' Question 29 response to the Council included a generalized concern about having "the lowest collocator very close to the tree canopy." Without an assessment of the tree canopy height, this assertion is not helpful. Potentially, with a canopy of 55-65 feet, there could be a substantial reduction in tower height while retaining collocation capacity. The site should be drive-tested at various heights to determine at what height the coverage of the lowest carrier would be significantly undesirable.

[10] These are distributed antenna system cells, but they are still classified as small cells. The components are different from standalone small cells in only minor ways. Both have network interfaces, power connections, radio heads and antennas.

[11] Attachment 3, AT&T Answer to Town interrogatories, pg. 3, Height Analysis -93 dBm

Lacking analysis at lesser heights, I then looked at the Verizon -95 dBm coverage on the 700 MHz maps.[12] Verizon provided an array of individual maps that require the reader to flip back and forth to compare them. Verizon's coverage at various heights includes existing coverage. Considering the three 700 MHz maps at 98, 88 and 78 feet, the -95 dBm coverage is not materially impacted by the height reduction.

It is likely that the tower could be reduced by 30 feet and still be a favorable location for multiple collocators.

Q20. Do you have an opinion on the camouflage options?

A20. Yes. The carriers and Tarpon acknowledge that tree camouflage is acceptable, but with an additional cost and maintenance burden. The photosimulations show that for the duration of traveling from the west on Greens Farms Rd, the ¾ mile section is straight and aligned with the tower, resulting in a continuous view of the tower in the center of the field of vision as vehicles, cyclists and pedestrians approach the Hillspoint Rd intersection. This is perhaps the greatest visibility that will affect the greatest number of people for the greatest duration. Photosimulations of various forms of camouflage could be provided to help the Town decide what is best. A tree, although prominent from the west-to-east direction of view, might be an acceptable camouflage, and might be even more effective mitigation from the other viewpoints with more vegetative screening. If the effort to reduce the tower height is successful, it could reduce the stark appearance of the tower and, if desired, make tree camouflage more effective.

The width of the tower arrays could also be reduced. In South Yarmouth, Massachusetts, the tower developer and carrier applicants agreed to a reduced tower profile, with 6 ft wide mounting platforms instead of the more customary 12-15 ft wide ones. This reduces the visual mass of the structure. The attachments to the tower (antennas, platforms, etc.) could also be painted a common color, such as brown, to reduce the visual clutter created by sunlight and shadow among the various materials with various reflectances.

Q21. What, in your opinion, is the primary purpose of the proposed facility?

A21. I-95 is the primary objective. That's why Verizon installed small cells there. DOT traffic counts show a pre-COVID flow of 110,000 vehicles per day on Interstate 95. DOT data for Greens Farms Road next to I-95 show 7000 vehicles per day. The entire population of Westport is about 27,000 (2020 census).

Q22. What, in your opinion, is the best way to address coverage and capacity needs in the area of Greens Farms Rd and Interstate 95?

A22. The DOT property on Hales Rd is the best location for a new tower. It is consistent with the way towers are sited on nonresidential properties throughout Westport. It is collocated with

[12] Attachments 2-4, Verizon Answer to Town interrogatories, pp. 10, 17 & 24

similar tall visual clutter of the electrical transmission poles along the railway. It may require no new curb cuts.

Since the Interstate highway is the primary recipient of improved wireless service, it stands to reason that siting a tower on DOT property would be an equitable solution. The DOT site will address the wireless coverage objectives. The Town has been in dialog with DOT. DOT has a policy to enable the placement of wireless facilities on its property. The Council is a supporter of the DOT policy.

This case is a golden opportunity for the Council, the Town of Westport and the carriers to jointly pursue DOT for a decision on the Hales Rd site. The need expressed by the applicant is not particularly urgent, which allows for a reasonable delay to come to terms with DOT. Such an effort could result not only in the best solution for Westport in the present matter, but also in improved procedures for future DOT sites across the state.

I hereby affirm that the foregoing is true and accurate to the best of my knowledge and belief.

David Maxson, WCP
Isotrope, LLC
503 Main Street
Medfield, MA 02052
Office: 508 359 8833
Mobile: 617 448 8570

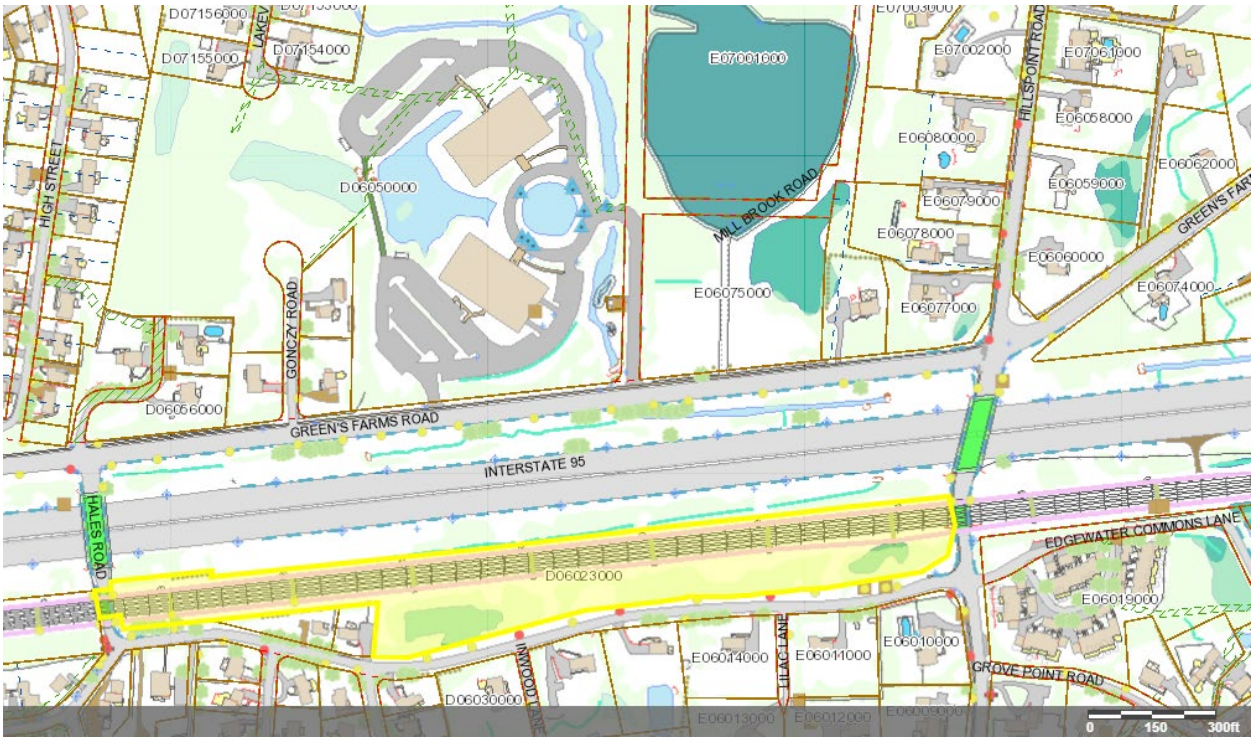
Sworn to and subscribed before me this 6th day of September, 2022.

Notary Public/Commissioner of the Superior Court

Devon Lang Underwood
NOTARY PUBLIC
Commonwealth of Massachusetts
My Commission Expires June 1, 2023

Attachment 1

Subject area on Westport GIS map. DOT parcel highlighted yellow. Proposed parcel is on right.

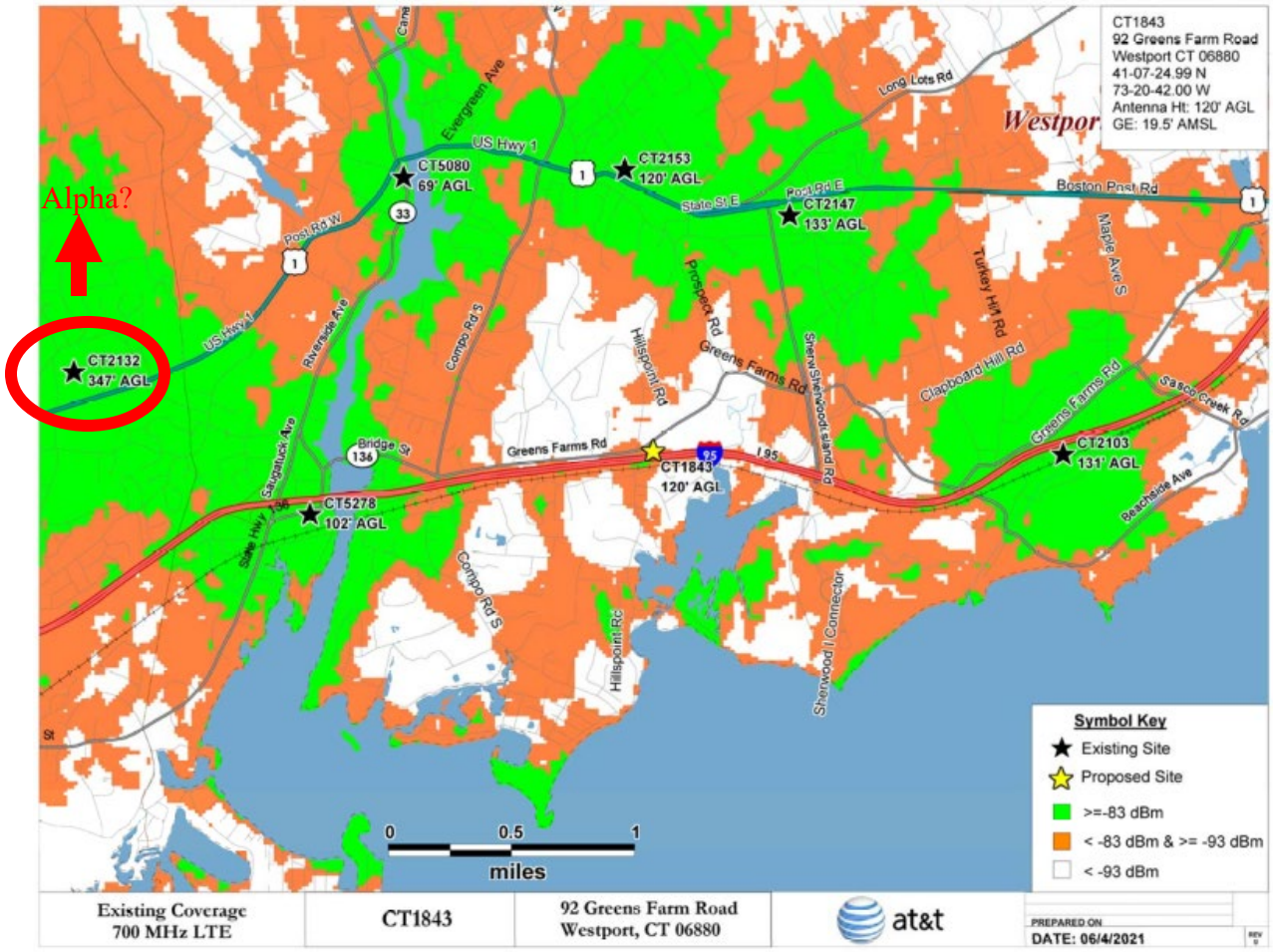


Attachment 2

AT&T Existing 700 MHz LTE Coverage

(Their Exhibit E Attachment 1)

Isotrope annotations added to show CT2132 Alpha sector presumed direction



Attachment 3

Configuration of a highly utilized small cell antenna

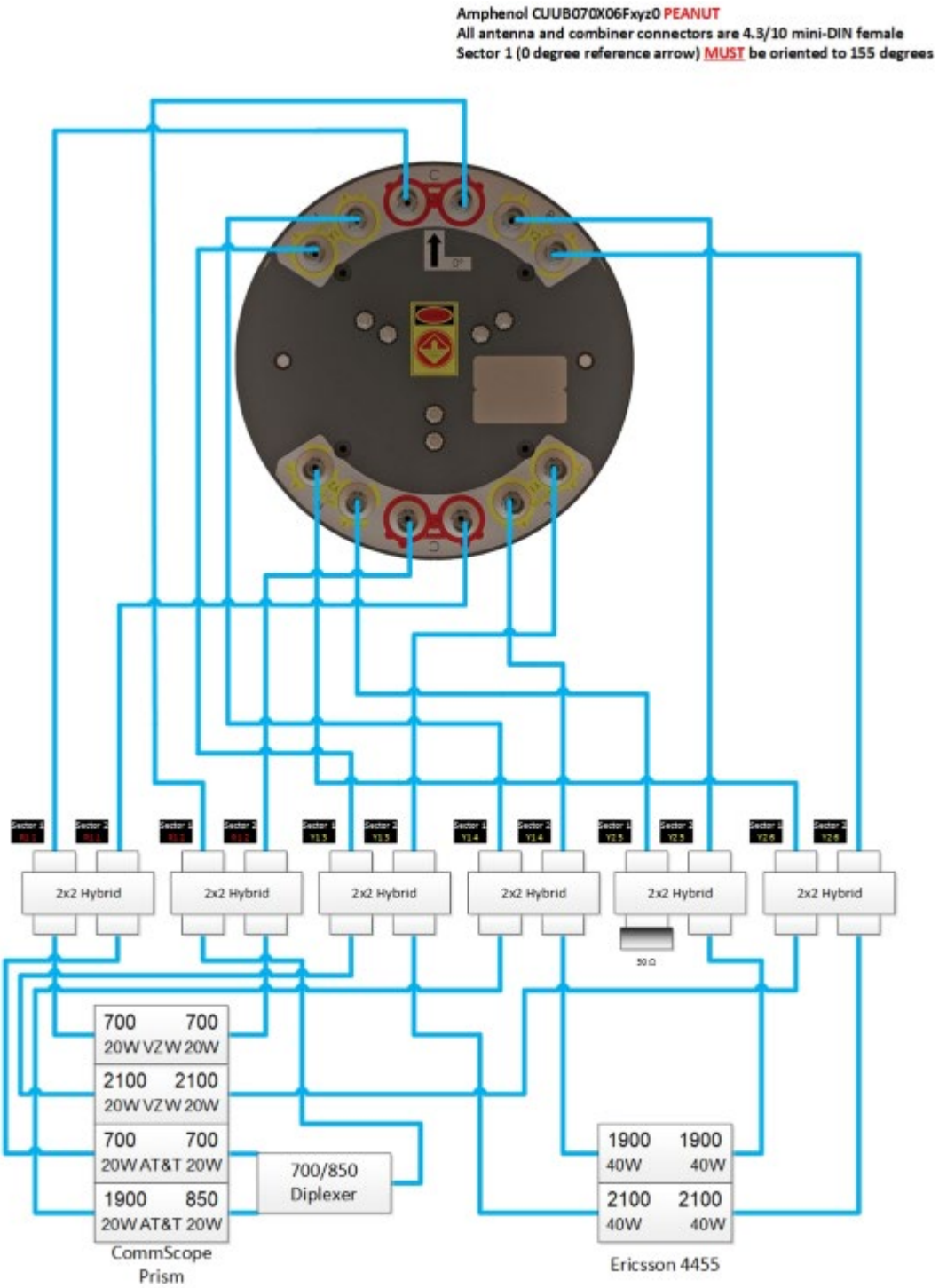


Figure 4 CUUB070X06Fxyz0 Antenna, Interface, and Radios

Attachment 4

Table of Tower land use in Westport

AT&T Site ID	Address	Height	Land Use (from assessor)	Owner	Notes
CT2103	26 Maple Ln	131	Cell Site	Private	Gravel pit between I-95 & Railroad
CT2147	800 Post Rd East	133	Cell Site Vac Lnd	State	Former State Police site on Rt 1. Now a Walgreens. State retained tower site ownership.
CT2153	9 Crescent Park Rd	120	Fire Dept	Town	Fire Station
CT2094	2 Allen Raymond Lane	100	Cell Site	Verizon	Among an area of non-residential use at Parkway exit
CT2107	180 Bayberry	100	Mun Bldg Com	Town	Former Nike control site beside Parkway