

IMPLEMENTATION OF 5G IN VERMONT

5G frequencies (shown in orange) involve Low-, Mid- and High-bands.

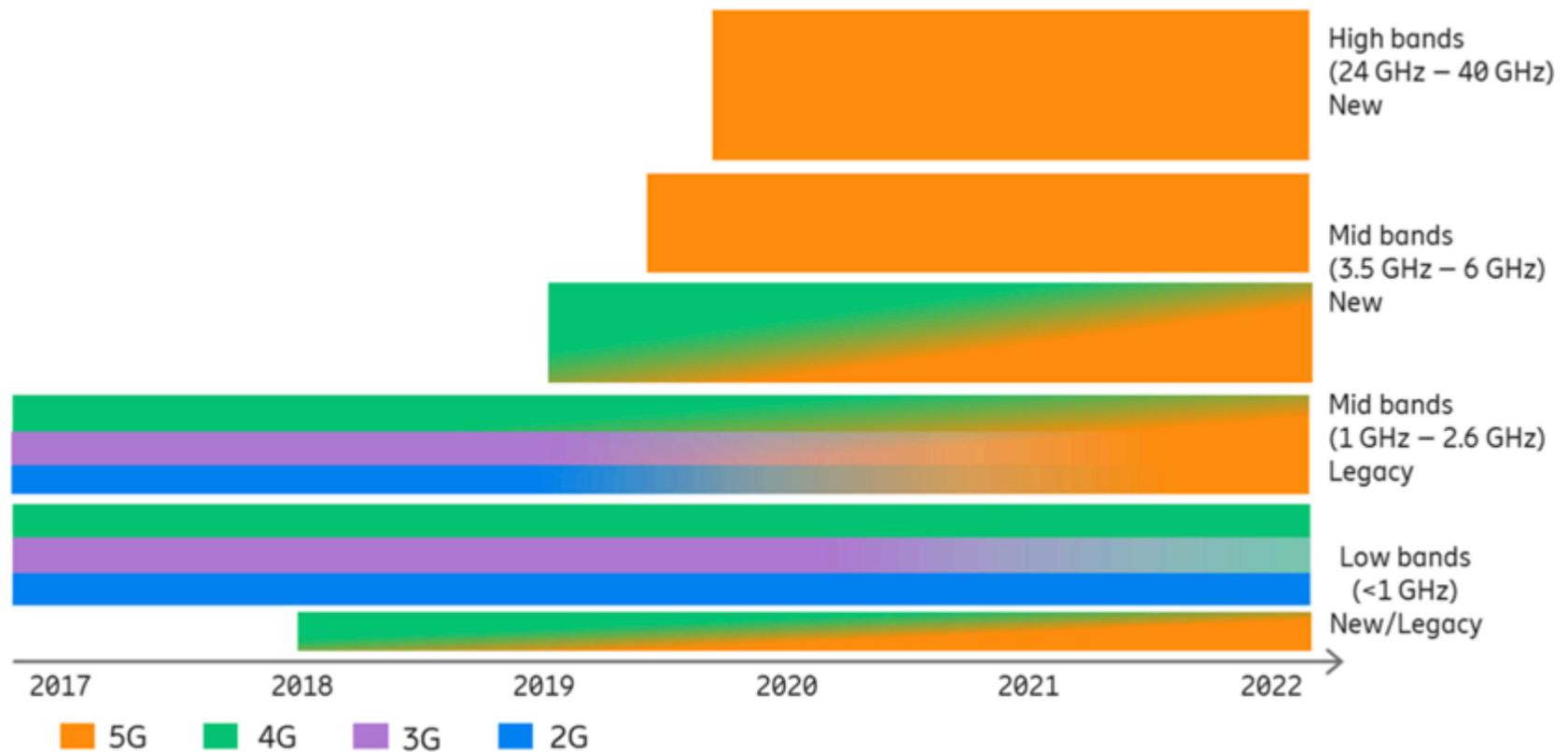
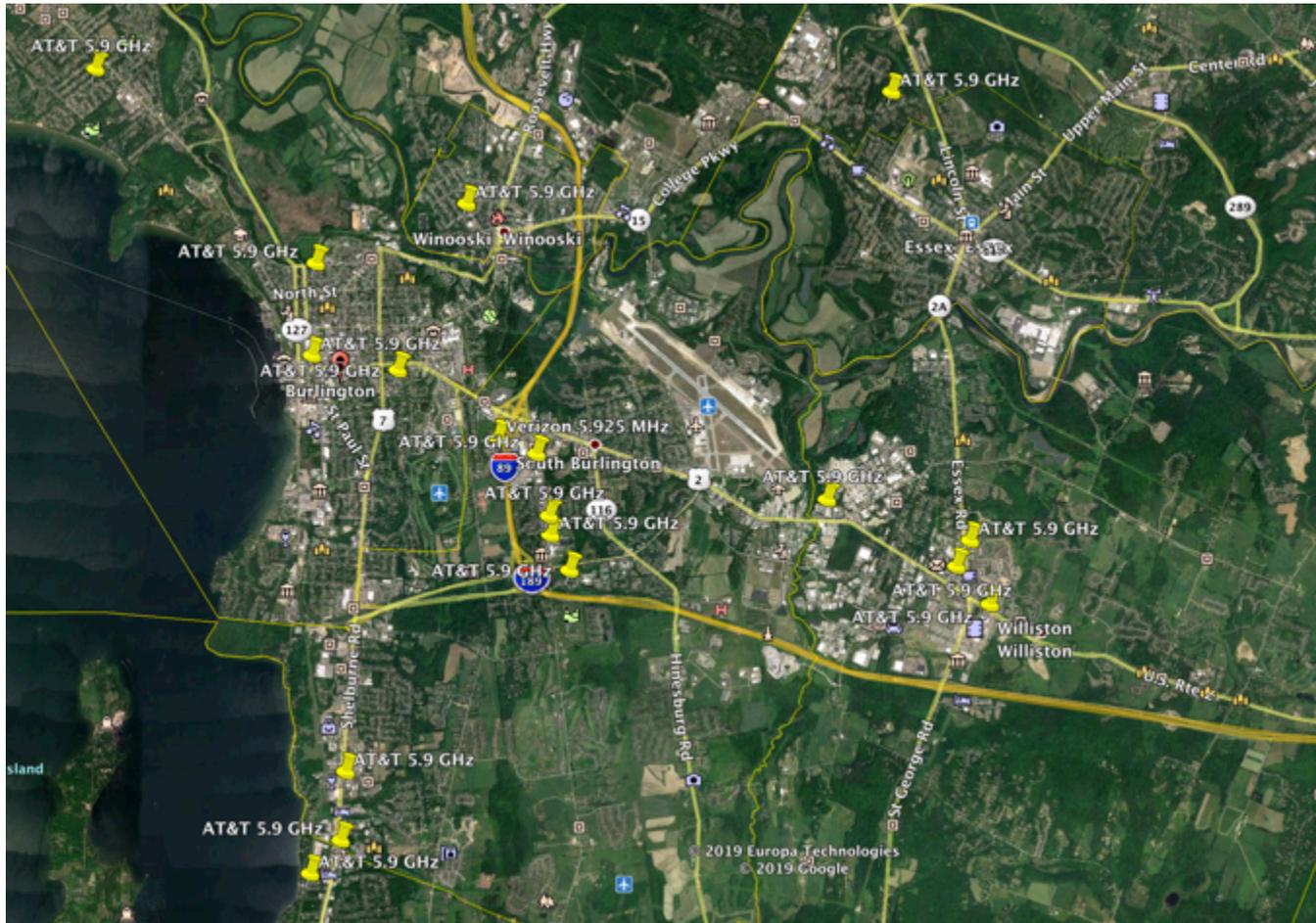


Figure 1: Indicative spectrum allocation over time

Chittenden County **New Mid-band 5G** AT&T pole-attached canister antennas *Up to 5.9 GHz -- approved by the PUC in 2018 and 2019*

All project narratives for these locations contain this language:

“The Project also allows AT&T to prepare for implementation of newer technologies—including **5G capabilities**, "smart cities" and new developments in the Internet of Things ("IoT").”



Stowe **New Mid-band 5G Verizon pole-attached canister antennas**
Up to 5.925 GHz -- applied for in October 2019

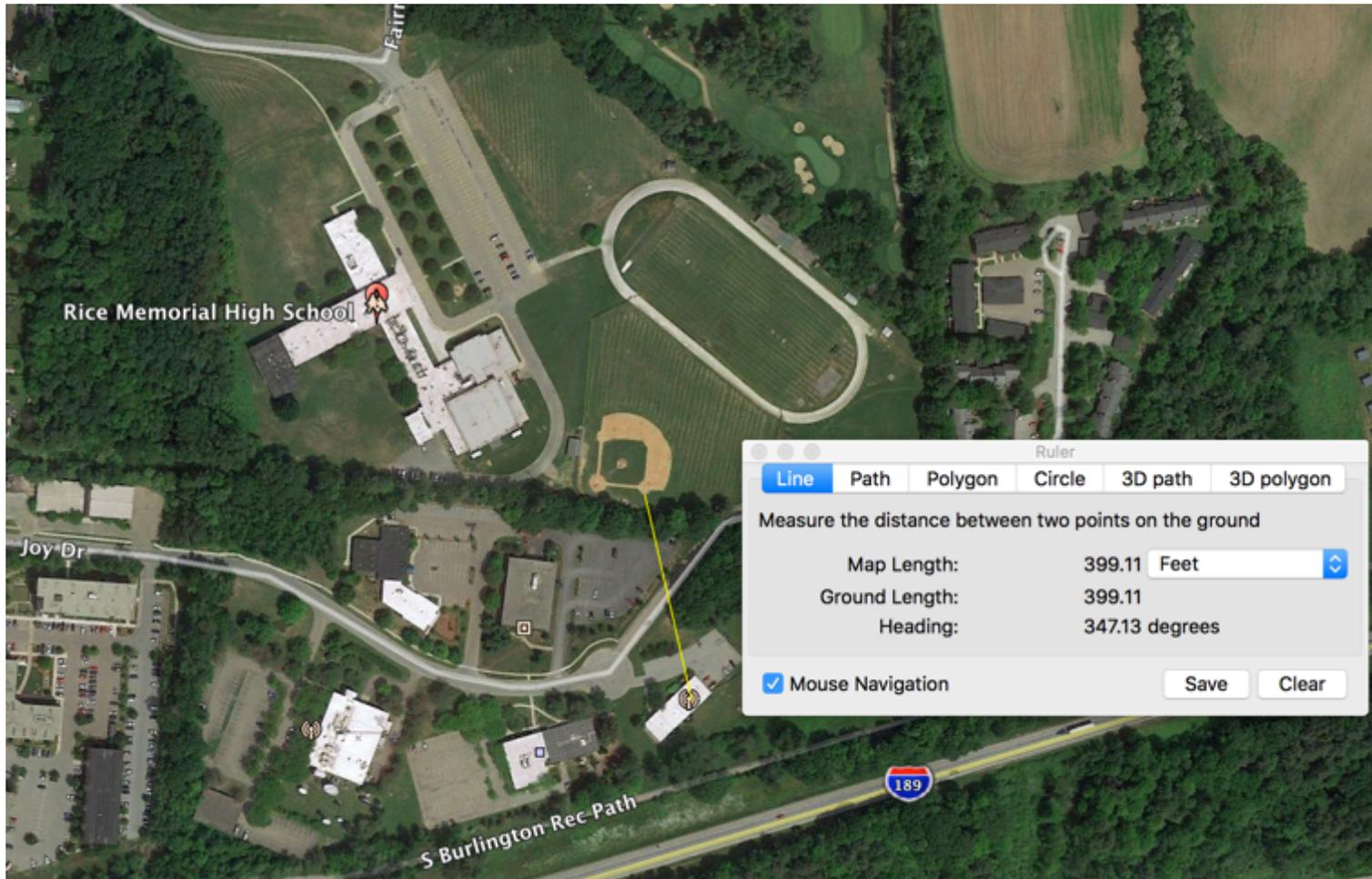


45 Advance Notices and Petitions filed with the PUC in the last four months of 2019

For new towers and upgrades of existing antennas up to 2.6 GHz, *Legacy Mid-Range 5G*

Date Filed	Date Approv	Subcase Type	Issue Type	Petitioner/Applicant Name	Case Number	Case Name	Town	Case 5 New or Existing	Location	Address	Technology	Notification
12/31/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-5022	New Cingular Wireles	Topsham	Open	tower replaceme	180' monopole, Pierson Hill	off Ben Dexter Road	adjoiners, SB, PC, Two Rivers RPC
12/30/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-5010-AN	New Cingular Wireles	Grand Isle	Open	new, FirstNet	180' monopole, Grand Isle Sheriff's Depart	10 Island Circle, Grand Isle, Vermont	adjoiners, SB & PC & DRB, Northwest RPC, D
12/30/19		Advance Notice	TK9 248a Regular	Bell Atlantic Mobile Systems of AI	19-4995-AN	Bell Atlantic Mobile Si	Stowe	Open	new	Spruce Peak Arts Center cupola	122 Hourglass Drive, Stowe, VT 05672	adjoiners, SB & PC, Lamoille County Planning
12/18/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4921-PET	Petition of New Cingu	Fairfield	Open	existing	barn silo	1380 Chester Arthur Road, CCI up to 2400 MHz	SB, Landowner
12/18/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4918-PET	Petition of New Cingu	New Haven	Open	existing	barn silo, property of Jean Smith	749 North Street, New Hav CCI up to 2400 MHz	SB, Landowner's attorney
12/18/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4917-PET	Petition of New Cingu	Saint Albans	Open	existing	next to SR Smith Realty and I-89	353 Fairfax Road, St. Alban CCI up to 2400 MHz	SB, Landowner (tower co.)
12/17/19		Petition	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4901-PET	Petition of New Cingu	Mount Holly	Open	new, FirstNet	130 foot monopine, property of Raymond	581 Stewart Road South, KMW & CCI up to 2400 M	adjoiners, SB, PC, Rutland RPC
12/17/19		Petition	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4899-PET	Petition of New Cingu	Thetford	Open	existing monopin	property of Arlene Silva	1112 John Quail Road, Th 6 antennas + other equip	adjoiners, SB, PC, RPC, Env. Comm.
12/16/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4886-PET	Petition of New Cingu	Stowe	Open	existing	Town of Stowe wastewater treatment pla	56 River Road, Stowe, Verri CCI up to 2400 MHz	SB, Town manager
12/16/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4889-PET	Petition of New Cingu	Vergennes	Open	existing water to	Town of Vergennes water tower	Route 22A, Vergennes, Veri CCI up to 2400 MHz	City Manager
12/12/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4860-PET	Petition of New Cingu	Putney	Open	existing	117' tower	454 Holland Hill Road, Puti CCI up to 2400 MHz	SB, Tower Co. landowner
12/10/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4831-PET	Petition of New Cingu	Richmond	Open	existing	100' stealth tower	1760 Jericho Road, Richmc CCI up to 2400 MHz	SB Chair, Tower Co. landowner, one individ.
12/10/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4836-PET	Petition of New Cingu	Ryegate	Open	existing	100' monopole	2595 Bayley Hazen Road, F CCI up to 2400 MHz	SB c/o Town Clerk, Tower Co. landowner
12/6/19		Petition	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4810-PET	Petition of New Cingu	Colchester	Open	existing	120' monopole, property of Robert Doraz	970 Clay Point Road, Colch CCI up to 2400 MHz	adjoiners, SB, PC, RPC, landowner
11/27/19		Petition	TK9 248a Regular	Rising Tide Towers LLC	Wireless	19-4738-PET	Petition of Rising Tide	Open	new, FirstNet	196' lattice tower	off of Forest Lake Road, Av CCI up to 2400 MHz	adjoiners, Town Clerk, NVDA (RPC), landow
11/22/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4679-AN		Leicester	Open	existing, FirstNet	100' monopole, property of Hutchinson F	1629 Shackett Road, Leicester, Vermont	adjoiners, SB, PC, RPC, landowner
11/22/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4684-AN	60-day advance notio	Ludlow Tower	Open	existing, FirstNet	109' tower, property of Rockmont LLC	360 Rod & Gun Club Road, Ludlow, Vermont	adjoiners, SB, PC, RPC, landowner
11/21/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4653-AN	60 day advance notic	Sheffield	Open	new, FirstNet	180' monopole, property of Walter and Su	40 Sheffield Square Road, Sheffield, Vermont	adjoiners, SB, PC, NVDA (RPC), landowner
11/12/19		Petition	TK9 248a	Sprint Spectrum, L.P.	19-4545-PET	Petition of Sprint Spei	Montpelier	Open	existing	building rooftop, property of Barrett Ente	190 River Street, Montpeli KMW up to 2690 MHz	city manager, landowner
11/8/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4535-AN	60-day advance notio	Mendon	Open	new, FirstNet	property of Skybrooke Enterprises, LLC	US Route 4, Mendon, Vermont	adjoiners, SB, PC, RPC, landowner
11/7/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4520-PET	Petition of New Cingu	Weathersfie	Open	existing	120' monopine stealth tower, property of	5122 Route 5, Weathersfie CCI up to 2400 MHz	SB, Tower Co., landowner
11/6/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4512-AN	60-day advance notio	Shaftsbury	Open	existing, FirstNet	120' stealth monopine, property of Gale a	2506 Glastenbury Road, Shaftsbury, Vermont	adjoiners, SB, PC, RPC, Env. Comm.
11/5/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-4495-AN	60-day advance notio	Castleton	Open	existing, FirstNet	114' tower, property of Scott, Seth and Dy	287 Hillside Drive, Castleton, Vermont	adjoiners, SB, PC, RPC, landowner
10/31/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4440-PET	Petition of New Cingu	Granville	Open	existing	100' monopole, property of Scott and Jear	997 Butz Road, Granville, ' CCI up to 2400 MHz	SB, landowner
10/31/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4435-PET	Petition of New Cingu	Stowe	Open	existing	195' tower, property of Paul Percy	2697 West Hill Road, Stow CCI up to 2400 MHz	SB, landowner
10/31/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4438-PET	Petition of New Cingu	Warren	Open	existing	99' monopole, property of Summit Ventur	849 Upper Village Road, W CCI up to 2400 MHz	SB, Tower Co., landowner
10/31/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4436-PET	Petition of New Cingu	Waterford	Open	existing	140' monopole, property of William Willis	161 High Ridge Road, Wati CCI up to 2400 MHz	SB Chair, Tower Co. landowner
10/30/19		Advance Notice	TK9 248a Regular	Bell Atlantic Mobile Systems of AI	19-4420-AN	60-day advance notio	Burke	Open	new	on building, property of Burke 2000 LLC	2559 Mountain Road, East Burke, Vermont	adjoiners, SB, PC, NVDA (RPC), landowner
10/28/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4376-PET	Petition of New Cingu	Peru	Open	existing	140' monopole, property of Paul Meyers e	503 Halstead Lane, Peru, V CCI up to 2400 MHz	SB, Tower Co. landowner
10/28/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4373-PET	Petition of New Cingu	Sharon	Open	existing	150' lattice tower, property of Verizon Wi	800 Baxter Mountain Roac CCI up to 2400 MHz	SB, Tower Co., landowner
10/25/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4360-PET	Petition of New Cingu	Saint George	Open	existing	120' lattice tower, property of American T	58 Mount Prichard Lane, S CCI up to 2400 MHz	SB, Tower Co.
10/22/19		Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-4307-PET	Petition of New Cingu	Brookfield	Open	existing	95' monopole, property of Douglas and Di	2382 Ridge Road, Brookfie CCI up to 2400 MHz	SB, Tower Co., landowner
10/14/19		Petition	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-3855-PET	Petition of New Cingu	Chester	Open	new, FirstNet	184' tower, property of Robert and Marci	178 Lovell Road, Chester, KMW up to 2400 MHz, Ci	adjoiners, SB, PC, RPC, landowner
9/30/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-3706-AN	60 - Day Advance Not	Pittsford	Open	new, FirstNet	140' monopole, property of Kit and Lillian	604 Oxbow Road, Pittsford, Vermont	adjoiners, SB, PC, RPC, landowner
9/20/19		Petition	TK9 248a Regular	Bell Atlantic Mobile Systems of AI	19-3577-PET	Petition of Bell Atlanti	Shoreham	Open	new	140' tower, property of Barnes Black and	off North Cream Hill Road, JAHH Commscope up to	adjoiners, SB, PC, RPC, landowner
9/12/19		Petition	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-3511-PET	Petition of New Cingu	Derby	Open	new, FirstNet	140' tower, property of Tivoly USA	off of Elm Street, Derby Lir KMW up to 2400 MHz, Ci	adjoiners, SB, PC, NVDA (RPC), landowner
8/30/19	10/9/19	Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-3406-PET	Petition of New Cingu	Killington	Closed	existing, FirstNet	60' lattice tower, property of Killington/Pi	Pico Peak, Killington Road, Kathrein up to 2690 MHz	SB, Tower Co., landowner
8/27/19	10/3/19	Petition	TK9 248a	T-Mobile Northeast, LLC	19-3360-PET	Petition of T-Mobile h	Poultney Tow	Closed	existing	99' monopine, property of Wesley and Bai	331 Windywood Acres Roa no equipment specificati	SB, Tower Co., landowner
8/22/19	10/3/19	Petition	TK9 248a	T-Mobile Northeast, LLC	19-3327-PET	Petition of T-Mobile h	Berlin	Closed	existing	102' monopole, property of Woodfield Pr	652 Granger Road, Berlin, ' RFS up to 2200 MHz, Eric	SB, Landowner
8/19/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-3289-AN	Advance Notice of Ne	Ferrisburgh	Open	new, FirstNet	140' monopole, property of Timothy K. Va	3980 US Route 7, Ferrisburgh, Vermaet	adjoiners, SB, PC, RPC, landowner
8/15/19		Advance Notice	TK9 248a Regular	New Cingular Wireless PCS, LLC	19-3273-AN	Advance notice of Ne	Grand Isle	Open	new, FirstNet	140' monopole, property of Mark and Eva	41 Lovers Lane, Grand Isle, Vermont	adjoiners, SB, PC, DRB, RPC, landowner
8/14/19	10/31/19	Petition	TK9 248a	T-Mobile Northeast, LLC	19-3258-PET	Petition of T-Mobile h	Derby	Closed	existing	100' tower, property of Lawrence and Sha	734 Hinman Settler Road, ' RFS up to 2200 MHz	SB, landowner
8/14/19	9/26/19	Petition	TK9 248a	T-Mobile Northeast, LLC	19-3260-PET	Petition of T-Mobile r	Milton	Closed	existing	120' monopole, property of Camp Holding	78 Precast Road, Milton, V RFS up to 2200 MHz	SB, landowner
8/12/19	9/26/19	Petition	TK9 248a	New Cingular Wireless PCS, LLC	19-3238-PET	Petition of New Cingu	Ludlow Tower	Closed	existing	83' monopole, property of CNL-income Oh	77 Okemo Ridge Road, Luc Kathrein up to 2690 MHz	SB, Tower Co., landowner

Four microwave antennas have been applied for in the last four months of 2019 including this one close to Rice Memorial High School in South Burlington
The high school ball field is 400 feet to the north, South Burlington Rec Path is to the south.



others are in Berlin, Woodstock, and St. George

Excerpts from Vermont Health Department Report on Radio Frequency Radiation

<https://legislature.vermont.gov/assets/Legislative-Reports/RFR-Report-12.23.19.pdf>

“Cancer from RFR exposure has been extensively investigated in laboratory and epidemiological studies. Results from these studies provide some evidence that RFR is associated with cancer in animals and humans. More studies are needed to understand how RFR may contribute to cancer,

“evidence is found in some epidemiological studies of long-time, heavy users of wireless telephones and increased incidence of brain cancers. Studies of animals exposed to whole-body RFR indicated “clear evidence” of the formation of heart tumors associated with RFR exposure,”

“Based on the available evidence from 2G and 3G wireless telecommunications RFR, it is reasonable to conclude that high levels of RFR from cell phones may be harmful to humans if they are exposed for long hours each day over their entire lifetime.”

“The NTP studies found clear evidence of tumors in the hearts of male rats exposed to RFR. These tumors were schwannomas, tumors of the tissues that cover nerves. The NTP studies found some evidence of tumors in the brains of male rats exposed to RFR. These tumors were malignant gliomas, the same type of tumors for which IARC found limited evidence in humans to connect them to RFR. The NTP study found some evidence of tumors in the adrenal glands of male rats.”

“these studies question the long-held belief that RFR does not have health effects other than heating up bodily tissues. One conclusion that may be drawn from the NTP toxicological and carcinogenic studies is that high levels of RFR from cell phones may be harmful should users be exposed for long hours each day over their entire lifetime. This reinforces efforts in public health to minimize the dose to RFR, especially to children.”

The report makes the common mistake that 5G only uses millimeter waves (MMW). The reality is that 5G employs low-band and mid-band microwaves as well as millimeter waves. Thus, much more research may apply than the MMW studies. For more information see: [5G Wireless Technology: Millimeter Wave Health Effects](#)