

# 5G wireless may interfere with weather forecasting

By ERIC AVEDESIAN  
Cape May Star and Wave

OCEAN CITY — Will the Federal Communication Commission's push to 5G wireless technology interfere with and disrupt weather forecasts?

Weather forecasters say yes, but others disagree.

The fifth generation of cellular network technology, 5G promises data speeds up to 100 times faster than 4G networks. But the technology may affect the reliability of weather forecasts.

"I've seen information from the U.S. Navy and from the National Weather Service that there are serious concerns with the implementation of 5G and its impact on weather prediction," Ocean City Office of Emergency Management Director Frank Donato said. "In some cases, I've read it could put our weather prediction technol-

ogy back 20 to 30 years."

According to an article in the May 23 edition of Scientific American, the National Oceanic and Atmospheric Administration (NOAA) and NASA are asking the FCC to protect weather forecasting as 5G is being deployed.

According to the article, the FCC auctioned off the first part of a 5G spectrum in April for \$2 billion.

Regulators will meet in Egypt in October to negotiate international agreements for frequencies companies will be able to use for 5G transmissions, according to the article.

The FCC auction involved two frequencies, one between 24.25 and 24.45 gigahertz and the other between 24.75 and 25.25 gigahertz. According to the article, wireless equipment transmitting "near the lower end of that range could interfere with the 38.8-gigahertz water-vapor measure-

ment. ... Radio-frequency engineers measure noise in units of decibel watts. Regulators set controls that limit the noise allowed; more-negative numbers indicate increasingly stringent controls. The FCC auction set a noise limit on the U.S. 5G network of -20 decibel watts, which is much noisier than the thresholds under consideration by almost every other nation for their systems."

According to the article, "satellites flying over areas of the United States with 5G wireless coverage won't be able to detect concentrations of water vapor in the atmosphere accurately. Meteorologists in the United States and other countries rely on those data to feed into their models; without that information, weather forecasts worldwide are likely to suffer."

Meteorologist Jordan Gerth, of the University of Wisconsin-Madison, was

quoted as saying there was little evidence how bad weather forecasting would become once interference increases at 23.8 gigahertz.

"The more we lose, the greater the impact will be," Gerth said.

According to an article May 23 in The Washington Post, scientists claim deploying 5G could "interfere with critical satellite data used in weather forecasting, pitting the interests of science and safety against a pressing national priority."

Both the NOAA and NASA have fought with the FCC over deploying 5G.

Neil Jacobs, acting head of the NOAA, testified before the House Science Committee in May that the interference from 5G could result in a 30 percent reduction in accuracy with weather forecasting.

"If you look back in time to see when our forecast

skill was roughly 30 percent less than it was today, it's somewhere around 1980," Jacobs said.

The Washington Post noted that under this reduced forecast ability, the European forecast model would not have predicted the 2012 landfall of Hurricane Sandy, showing the storm would turn toward the sea and not providing accurate information for those who would likely be stuck in the storm's path.

Some believe transitioning to a 5G wireless network will not affect weather forecasts. CTIA, a trade group representing the U.S. wireless communications industry, denied Jacobs' statement over 5G downgrading weather predictions.

"It's an absurd claim with no science behind it," CTIA Executive Vice President Brad Gillen wrote in a blog post. "The dire predictions

right now from the Department of Commerce about the impact of 5G on current weather forecasting are wrong on the merits, on the facts and on the process."

Sasha Segan writes in PC Magazine that 5G wireless is "about very fast speeds and very low latency. To get there, it needs a lot of wireless spectrum—the networking equivalent of very good roads on which to drive. The FCC decided a while ago that the easiest place it could find those broad roads was at very high frequencies, called millimeter-wave."

"Figuring out how to run the roads for 5G is always going to be a balance of interests involving who owns the land," Segan writes. "It's the best interest of the FCC to spend less time fighting storm forecasters and more time making sure we get spectrum that can go the distance."

## Small staff forcing overtime

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if an officer has a sick day or vacation day.

"We're using overtime to fill those spots," Marino said.

One squad has only two full-time officers but is supplemented by a full-time Class II officer, he said. The police department has one officer on deferred assignment and one officer on limited duty. He said Class I and Class II officers are used seasonally and to supplement full-time staff. Marino said the department has 12 Class II officers and five Class I officers.

Marino said a Class II officer while working has full duty and authority as a full-time police officer but when they are off duty, they revert to being a civilian. Class I officers do not carry a weapon, have no arrest powers but can assist full-time officers and can issue parking tickets, he said.

Three Class II officers are used to supplement the full-time patrol squads with remaining Class II and Class I officers hired seasonally. One Class II officer is a full-time employee allowed by law to receive a salary and health benefits.

Marino said there is no definitive guide for staffing levels but using FBI Uniform Crime Reporting statistics for the number of officers per 1,000 inhabitants in the Mid-Atlantic region with a summer boost, Cape May's Police Department would fall between two categories.

For Group Four — a population between 25,000 and 49,999 inhabitants in peak summer months — there should be 2.1 officers per 1,000 inhabitants, he said.

For Group Six — a population of fewer than 10,000 permanent residents without events or tourism, there should be 3.5 officers per 1,000 inhabitants, Marino said.

"Although we have a year round population of under 10,000, there's many weekends in the offseason where we have many more than 10,000 inhabitants in the city based on different events going on during our shoulder season and holiday season," he said.

A summer population es-

timate for Cape May, West Cape May and Cape May Point, calculated by the county for 2016, was 58,919. Marino said another factor is the population increase from Lower Township and Wildwood Crest, with a number of those persons visiting Cape May.

He said the average monthly population calls for 2.8 officers per 1,000 inhabitants, creating a need for 61 officers year round.

"Quite a few more than we have now," Marino said.

If using the same formulas for just the summer population, the city should have about 161 officers during the peak months, he said. Marino said that figure was unnecessary and fiscally impossible. He said the city would not go from 25 full-time officers to 161 officers.

"It does show the great job our officers do in the summer season," he said.

The process to hire a new officer is lengthy. The city must first ask for a certification of the Civil Service list, Marino said, adding that it has been almost two years since Civil Service held a test. The city has been working with a Civil Service list from the county.

A background process begins for respondents with a complete criminal history check followed by receiving a detailed personal history questionnaire, Marino said. A background investigation begins that may take two weeks to a month.

"We get in touch with the person's neighbors, we interview their past employers," he said.

An investigator may have to drive to another city to interview past employers, Marino said.

"You're talking about hir-

ing an individual for 25 to 30 years as an employee and you want to make sure that you fully vet that person," he said.

Marino said an applicant that passes the investigation continues to an oral interview with a board of administrative staff. Following that, an applicant may be given an offer of conditional employment, he said.

The applicant is subject to medical and psychological examinations, a physical fitness assessment and a drug screening, Marino said. An applicant who is hired must attend police academy for 20 weeks unless they are coming from another police department, he said. The academy is offered only twice a year.

A graduate from the police academy has to complete the department's field training program, which can last from 12 to 20 weeks. After graduation from the academy, all new hires have a one-year probationary period during which the officer is being evaluated for retention, Marino said.

A time span of 41 weeks on average takes place before a new hire is a self-sufficient officer who can operate alone on the street, he said.

Marino said the police department is short-staffed. In 2018, the department answered 15,005 calls for service, including 2,386 motor vehicle stops, 212 motor vehicle accidents and 303 disorderly persons calls.

So far this year, the depart-

ment has answered 10,995 calls for service, including 1,338 motor vehicle stops, 134 motor vehicle accidents and 229 disorderly persons calls.

He said the implications of a short-staffed police department include a large amount of overtime to maintain a three-officer minimum per shift. At this time, the department has reached 82 percent of its overtime budget for the year, Marino said.

In 2017, the short-staffed department exceeded its overtime budget by about 30 percent, he said.

"It's an increased risk to the officers' safety based, No. 1, on not enough officers to respond to certain calls," Marino said.

The workload and stress is increased in short-staffed squads, he said. Marino said it is necessary to have at least two officers on domestic violence calls.

If a domestic violence call is answered in Cape May and West Cape May at the same time with the current staff, not enough officers are available to handle the calls safely, Marino said.

"Earlier this year, we've actually had situations where we had to call other departments for mutual aid because the number of people that had called far outnumbered our officers," he said.

The department needs to front fill positions instead of waiting for a retirement to occur and then try to fill the position, Marino said. He

said the department needs to anticipate a retirement and fill the position one year prior to the loss, since it takes nine and a half months to fill and fully train the officer, Marino said.

He said the six officers hired when Cape May contracted with the two boroughs to provide police services are due to retire at the same time.

City Manager Neil Young said three officers left this year in January and February — one joined the State Police, one resigned and one retired.

Marino said it would be prudent to enlarge the department to four-person squads and in his opinion, personnel should be increased to five- or six-member squads.

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