

**REMARKS OF FCC CHAIRMAN AJIT PAI
AT THE 8TH ANNUAL AMERICAS SPECTRUM MANAGEMENT CONFERENCE**

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Good morning! It's great to be with you. Thank you to Forum Global for inviting me and hosting this event.

This isn't my first time here, as you might recall. Last year, we were just coming off the first 5G Summit at the White House. There was buzz about a new wave of wireless innovation, but it was largely that—buzz. This year, we can talk about what's already happening.

Fixed and mobile 5G networks have gone live in multiple U.S. markets in the past year, and we've seen the introduction of the first 5G-enabled smartphones. One of the other sessions this morning is on the status of 5G rollouts, so I won't bother going into the details now.

Instead, I'd like to share a story I saw over the weekend that struck me as a good indicator of the progress we've seen over the past year and the new phase we're entering.

Last week in Spokane, Washington, Bob Burdett was riding his mountain bike to Riverside State Park to meet up with his son. But on the way there, he flipped his bike at the bottom of a steep hill. Bob hit his head and was knocked unconscious. When he woke up, he was in an ambulance on the way to the emergency room. How did Bob reach out for help if he was unconscious? He didn't. His Apple Watch did. It detected a hard fall, and immediately contacted 911 with information on his location.

A few points about this story. First, at last year's conference, many of us envisioned a wireless future where everyone and everything would be connected and smart devices would talk to one another, unlocking game-changing and potentially life-saving innovations. This is no longer nebulous. This is now.

The other thing I found notable about this story is how it ties together multiple technologies. It's not just about wireless connectivity. It's also about artificial intelligence and smart devices. It's this confluence of technological advances that is unlocking major breakthroughs.

And it illustrates a key reason why American leadership in 5G is so important: 5G networks will power a digital economy of applications and services that themselves will transform our economy, boost economic growth, and improve our quality of life. Advances in AI and machine learning will be integrated into our networks and devices. Billions of connected sensors will improve efficiency and productivity everywhere from the port to the farm.

This is an exciting time, and the FCC has been working to promote new breakthroughs across the communications sector.

Last year, I talked about our 5G FAST plan. The plan has three central planks: freeing up spectrum, promoting wireless infrastructure, and modernizing our regulations to promote more fiber deployment. We've been active on all three fronts, and there's mounting evidence that our efforts are working.

Let's start with spectrum. This year, we've made more of our nation's airwaves available for 5G. In January, we finished an auction of spectrum in the 28 GHz band. In May, we finished an auction of spectrum in the 24 GHz band. And on December 10, we'll start an auction of the upper 37 GHz, 39

GHz, and 47 GHz bands. This auction will be the largest in American history, releasing 3,400 megahertz of spectrum into the commercial marketplace.

But we haven't been focused only on high-band spectrum. We've also been active in freeing up mid-band spectrum, too.

A good example is the 2.5 GHz band. With almost 200 megahertz, this is the largest contiguous band of terrestrial, flexible use spectrum below 3 GHz in the United States. But this prime spectrum was originally targeted for local, educational television use, with legacy restrictions on its use dating back to the 1980s. As a result, far too much of the band has lain fallow, especially in the western half of our country.

This summer, the FCC finally liberalized the rules for the band, allowing more entities to access the spectrum and eliminating unnecessary restrictions. To bridge the digital divide, the FCC is giving Indian Tribes first access to this greenfield spectrum to bring broadband to rural Tribal lands. We will then make the remaining unassigned 2.5 GHz spectrum available for commercial use through an auction.

We've also targeted the 3.5 GHz band, which has been underutilized over the years by the federal government. In 2015, the FCC voted to create a complicated three-tiered access framework to open it up for private-sector use as well. But these rules left too much of this spectrum high and dry because we didn't have the right rules in place to encourage robust investment in 5G deployments in the Priority Access tier. However, thanks to Commissioner O'Rielly's leadership, we put the right rules in place last year that changed key characteristics of Priority Access Licenses and our approach to competitive bidding. These reforms make these licenses more appealing for 5G operations and will encourage the rapid deployment of next-generation wireless networks in the band. We've also worked through the technical issues necessary to facilitate commercial deployments in the band. And last week, we authorized five Spectrum Access System administrators to begin initial commercial deployments. And there's more good news. On Thursday, we'll vote to kickstart the process for establishing procedures for an auction of 70 MHz of Priority Access licenses in the 3.5 GHz band, with that auction scheduled to begin on June 25, 2020.

We're also working on the complicated task of freeing up spectrum for 5G in the 3.7-4.2 GHz band, commonly called the C-Band. This is a critical band for 5G, and I'm optimistic that we will have results to show on this front this fall. Also, the FCC is studying reallocation of spectrum in the 3.1-3.55 GHz band for commercial use, and I hope our federal partners will join us in that effort.

I know this is a spectrum management conference, but let me hit briefly on the other two pieces of our 5G FAST plan, for they complement our spectrum policies, giving them more punch.

When it comes to promoting wireless infrastructure, we've addressed the problem of state and local governments unreasonably delaying the deployment of 5G infrastructure. We set a reasonable shot clock for cities to rule on small-cell siting applications and reasonable limits on siting fees—limits that allow localities to cover their costs.

Early indications are that these reforms are making a difference. In 2018, for example, the number of wireless small cells deployed in the United States more than quadrupled, from 13,000 to more than 60,000.

As for modernizing our regulations to promote fiber deployment, we've made it easier for carriers to transition from yesterday's copper networks to tomorrow's fiber networks. We've ended utility-style broadband regulation inspired by rules from the 1930s. And we've also adopted a new policy known as "one-touch make-ready." Until recently, a competitive entrant seeking to attach fiber to a utility pole had to wait for, and pay for, each company to sequentially move existing equipment and wires. This could take months and be quite costly. And for many companies, pole attachment problems represented one of

the biggest barriers to broadband deployment. But now, thanks to our one-touch make-ready policy, we allow a single entity to do all the necessary work on a utility pole.

These policies are working as well. In 2018, for example, fiber was deployed to more new homes in the United States than any year before. And infrastructure investment was up by \$3 billion last year compared to 2017.

It doesn't fit neatly into any of the three buckets of our 5G FAST plan, but the Commission recently took another action to promote 5G that deserves highlighting.

The impact of 5G will not be the networks themselves but the services and applications they enable. We want to encourage U.S. innovators and entrepreneurs to test the possibilities of these new networks and see what they can come up with. That's why, just last week, the FCC announced the creation of its first two Innovation Zones, in New York City and Salt Lake City. These Innovation Zones will be city-scale test beds for advanced wireless communications and network research, including 5G networks. We're also establishing a process to ensure new innovators can have access to this testing resource while protecting current, licensed users.

These Innovation Zones are not limited exclusively to promoting 5G, and neither is the Commission's spectrum agenda.

We're also pursuing new opportunities for unlicensed use—for wireless innovation without permission. This includes next-generation WiFi.

This past October, the FCC began to explore opening up 1,200 megahertz of spectrum in the 6 GHz band for different types of unlicensed uses. This band is currently populated by microwave services that are used to support utilities, public safety, and wireless backhaul. But studies have shown that sharing this band with unlicensed operations is feasible—and can put massive amounts of new spectrum into the hands of consumers. Unlicensed innovator Claus Hetting of WI-FI NOW has said, “This is without a doubt the single biggest opportunity in Wi-Fi—and probably in wireless—in a generation,” adding that, “this 6 GHz spectrum boost will launch the Wi-Fi industry into a new growth trajectory.” We're aiming to have the best of both worlds: protect today's incumbent users of the band while turbocharging the Wi-Fi networks and applications of the future.

This past March, in our *Spectrum Horizons* proceeding, we made over 21 GHz of spectrum above 95 GHz available for use by unlicensed devices. Some may say that the spectrum bands are too high to be practical. But the same was said of the 2.4 GHz band 30 years ago. Using the same idea behind our new Innovation Zones, we also created a new category of experimental licenses for spectrum above 95 GHz. This will give innovators strong incentives to develop new technologies using these airwaves while also protecting existing uses.

Now, I hinted at the heavens earlier, and for good reason: Satellite services play a critical role. And this is a particularly exciting area these days. We're not only seeing dramatic changes in satellites' capabilities; we're also witnessing a sea change in the economics of their deployment thanks to re-usable rockets, smaller form factors, and the like.

To unlock these possibilities, the FCC is approving a new generation of low-earth orbit satellites—satellites that have the potential to beam Internet access back to Earth at a speed and price point comparable to a terrestrial provider. And we've broached new sharing paradigms for satellite service in the millimeter-wave bands, while preserving their primacy in the 48.2-50.2 GHz and 40-42 GHz bands.

We've also facilitated the deployment of new Earth Stations in Motion. These are satellite receivers that enable Wi-Fi on a plane, a train, or a boat. By eliminating regulatory burdens and adding frequencies where these receivers can operate, we expect this fast-growing segment of the satellite industry to innovate and invest in new technologies.

Back here on Earth, we also want to encourage innovation in broadcasting—specifically, the development of the next-generation broadcast TV. In late 2017, the FCC majority authorized the ATSC 3.0 TV standard, which brings IP-based, advanced capabilities to broadcast TV. In 2018, we began approving trials in a number of markets. And this May, we began accepting applications for the licensing of ATSC 3.0 facilities. Broadcasters should and *will* be allowed to compete in the digital world and deliver consumer benefits without onerous FCC requirements, and we have implemented procedures to guarantee just that.

To this point, I've largely talked about spectrum management in the context of what it means for specific technologies and sectors. With an international audience in the room, I'd like to close with a point about what spectrum policy means for the region.

As many of you know, the World Radiocommunication Conference is just around the corner.

At the FCC, our priorities for WRC-19 track the same priorities we have at home and for our region: closing the digital divide and promoting 5G and other next-generation innovations. We need to enable regional and global spectrum harmonization opportunities for all services, including broadcasting, Wi-Fi, mobile technologies, and satellites. We need to create international economies of scale, roaming, and interoperability, lowering prices for manufacturers and consumers.

WRC-19 gives those of us in the Americas a chance to work jointly toward solutions for connectivity. We see each of the agenda items for WRC-19 as being part of a comprehensive, multi-technology approach to increasing the spectrum available for connecting the unconnected and delivering more advanced services for our citizens.

Global harmonization no longer requires every region to have identical spectrum allocations. Instead, it can be facilitated using radio tuning ranges. These tuning ranges allow manufacturers to develop equipment that can operate across multiple bands within a contiguous range, while allowing regulators the flexibility to manage spectrum resources according to their unique domestic requirements.

If we establish a flexible framework, if we harmonize spectrum policies, if we set reasonable protections for incumbents, we will drive technological innovation and investment throughout our region and the world.

In this spirit of cooperation, I would close by noting that, despite the fact that many of you may have a discrete interest based on the industry, company, or agency you represent, everyone shares a common interest in spectrum policies that will unleash new waves of innovation over the airwaves. I look forward to working with you to build a brighter wireless future.