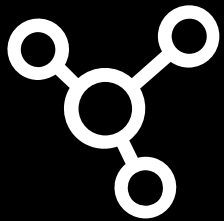


A historic opportunity to accelerate innovation through the Infrastructure Investment and Jobs Act




A guide for state and local governments on using the Internet of Things to extend constituent services, increase efficiency, reduce costs and enhance community safety

The Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), offers government and tribal organizations access to \$1.2 trillion in government funding—funding that goes beyond roads and bridges to include critical technology upgrades.¹ For many communities, this once-in-a-generation opportunity will be their best chance to invest in more efficient, cost-effective and capable systems and technologies across the Internet of Things (IoT).

\$1.2
trillion in
government
funding¹





This guide outlines the value of the Internet of Things for improving quality and reach of services offered to constituents as well as for modernizing and safeguarding essential technology infrastructure.

Chapter

1

The transformative potential of IoT-driven infrastructure



Connectivity is the foundation of the Internet of Things. The connected network of devices, sensors, vehicles, appliances, systems and software that constitute the IoT can help state, local and tribal authorities bridge the urban-rural technology divide, enhance service to constituents, and increase the reach and resiliency of their technology infrastructure.

Funding is available through the IIJA for many areas where IoT technologies can deliver ongoing benefits, including:



\$284 billion

for new transportation spending²



\$65 billion

for broadband services²



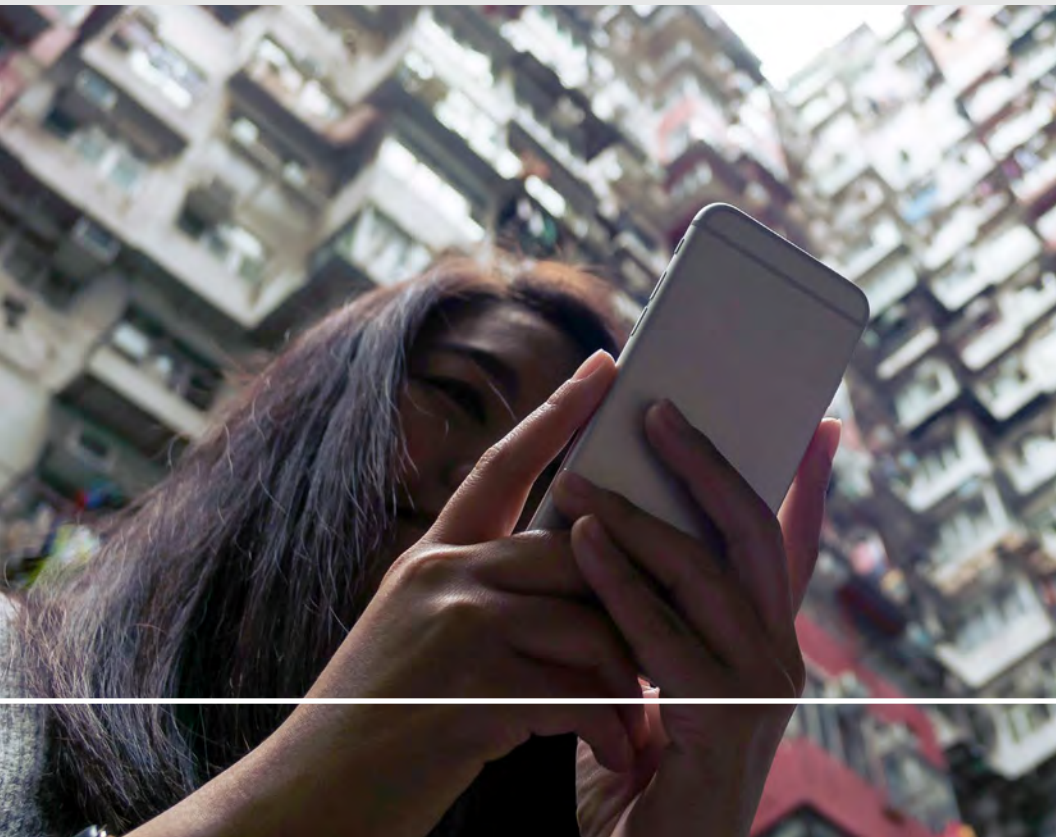
\$28 billion

for power and grid²



\$2 billion

for cybersecurity²



The C-Band revolution

Recent expansion of availability of the C-Band spectrum, with its increased range, speed, and ability to penetrate buildings and other structures more effectively, is boosting 5G wireless connectivity and performance for businesses and consumers alike. The greater speeds and lower latency of C-Band mean that schools can stream lessons to students virtually anywhere. Businesses can gain new visibility across their supply chains, more easily track shipments and roll out product updates faster. Ideal for use with devices on the IoT, C-Band wireless is an exciting advancement that IIJA funding can help you exploit to the fullest.



Broadband IoT (4G/5G)
is forecast to reach

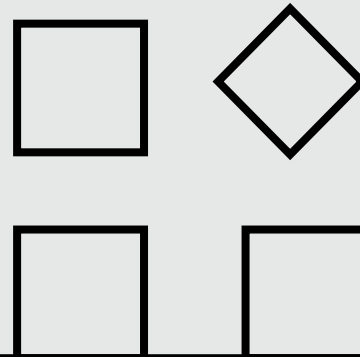
1.6
billion

connections in 2023 and is the technology that is expected to continue to connect the largest share of cellular IoT devices through 2029.³

Chapter

2

Reenergizing communities and revolutionizing business with IoT applications



In urban areas and rural communities, applications and devices connected through the IoT are helping expand public services and accelerate business. IoT technologies are bringing new insights to physical assets and infrastructure—insights that forward-thinking agencies use to serve their constituents more efficiently and business leaders can rely on to compete and win.

Here are just some of the ways that IIJA funding can be used for IoT-related projects:

Transportation

Roadway maintenance

Embed connected sensors in roadbeds to monitor conditions and proactively head off maintenance issues.

Traffic management

Adjust traffic flows in real time, using sensor-driven feedback to help decrease congestion and reroute vehicles quickly around accidents or during natural disasters.

Electric vehicle (EV) charging

Deploy or expand EV charging and fueling stations across your community to extend the network and support cleaner transportation.

Fleet management

Optimize visibility and control over vehicle operations, and improve uptime through sensor-driven, condition-based maintenance.



Energy and utilities

Intelligent lighting

Cut costs through networked sensors and smart meters that monitor and dynamically manage lighting for buildings and roadways.

Power grid

Deploy smart meters to track usage; reduce the impact of outages; optimize distribution; and help reduce the cost, time requirements and environmental impact of manual readings.

Water conservation

Support sustainability and more effectively stretch critical water resources through supervisory control and data acquisition (SCADA) technologies.

Supply chain and logistics

Asset and people tracking

Gain end-to-end visibility for products and other assets throughout the supply chain, and more easily monitor your people for greater efficiency and safety.

Intelligent video

Enhance situational awareness while safeguarding critical assets and personnel in remote locations with smart capabilities that include robust analytics and reporting.

Autonomous vehicles

Deliver the speed and low-latency connectivity needed to safely support self-driving vehicles by bringing compute to the edge, using cloud-integrated IoT devices and systems.

Chapter

3

Bridging the last mile: Why connectivity matters



To accelerate the rollout and adoption of new IoT services and to help bridge the digital divide, extending and enhancing connectivity, especially along the last mile to homes and businesses, is the key. There are choices to be made around the type of connectivity solution, depending on the specific business use case. Each offers a unique combination of reliability, cost, coverage and security in addition to scalability and latency.

Connectivity is the foundation for successful IoT deployment because it enables seamless data exchange for near-real-time insights. Lower latencies mean higher quality for streaming applications, while highly scalable network infrastructure helps avoid bandwidth bottlenecks.

The low latency and expansive bandwidth offered by C-Band enables near-real-time data processing that can drive faster and more effective decision making. C-Band offers a transformative mix of performance and coverage, allowing it to offer significantly broader range and penetration than high-band spectrum—so it can be accessed from within buildings—while offering speeds significantly greater than low-band 5G.⁴ The C-Band is also ideal for the high data volumes commonly associated with many IoT applications.



IIJA funding for the last mile

In keeping with the act's commitment to expanding innovation and bridging the digital divide, the IIJA dedicates \$65 billion in funding for extending broadband services in communities nationwide.⁵ This includes:



\$40 billion

for broadband deployment⁵



\$17 billion

to improve affordability⁵



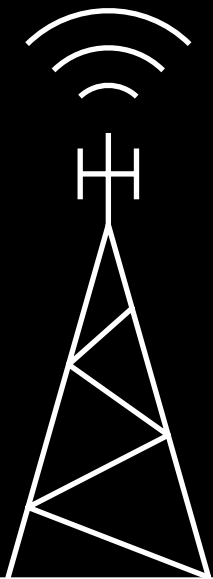
\$3 billion

to extend connectivity to rural areas⁵



**Find out more
about supporting
broadband through
the IIJA in our e-book.**





Bringing connectivity to underserved communities

Because we believe that no community should be left behind, Verizon is investing heavily in expanding our 5G infrastructure and our network capabilities in order to reach even more underserved Americans. Here are two examples.

Faster connections to 64 Native American reservations in 13 states

Students living in some of the nation's most remote tribal lands will experience school as never before through upgraded technologies and a commitment to closing the digital divide. Some 80 Bureau of Indian Education (BIE) schools are receiving upgraded high-speed internet service and connected devices.



[Learn more](#)

“

A quality, high-bandwidth connection is critical for students to be able to learn from wherever they are – especially in more remote areas.

”

– Maggie Hallbach,
Senior Vice President for
Verizon Public Sector

Expanding high-speed Fios internet in western Pennsylvania

Through one of the area's largest network upgrades, communities in two western Pennsylvania counties are benefiting from the deployment of Fios fiber broadband service. More than 130 miles of high-speed fiber is being deployed as part of the build-out in Washington and Westmoreland counties, a game-changing advance that will help enhance speed and connectivity to the region's residents and businesses.



[Learn more](#)

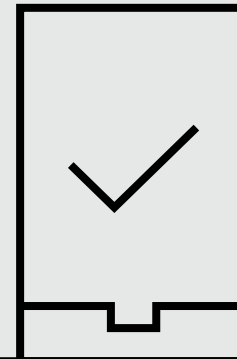
Nearly 1,100

new households and businesses in Washington and Westmoreland counties will have access to Verizon's Fios network, once completed.

Chapter

4

Partnering with Verizon for IoT





Expertise

Selecting the right technology partner for your IoT initiatives is critical to a successful outcome. That's because IoT-related projects can be very complex, requiring orchestration of multiple technologies along with extensive financial services experience as well as deep regulatory and compliance expertise.

A proven ability to navigate public-private partnerships is also key to success and can help cut through paperwork and regulations to get the job done.

Scale

In addition to expertise, your technology partner must have the ability to help you efficiently scale your IoT solutions. You'll want a partner that's able to navigate the technological complexity and deliver the reach and resources necessary to handle the integration of the various hardware, software and services required for a successful project.



Impact

Finally, you want a partner able to help you achieve your specific business goals and make a real impact on your community and constituents. This requires a deep and broad understanding of the industry and emerging technologies as well as the ability to quickly and effectively deploy and manage IoT capabilities.

The right partner

With connectivity at the heart of modern communications, partnering with Verizon for deploying and extending IoT technologies makes sense. We're experts in integrating communications into urban, suburban and rural communities, and we've worked alongside public agencies for decades on some of the largest and most complex technology rollouts. Our vast nationwide capabilities, vibrant ecosystem of innovative technology partners, award-winning network and deep technology expertise are designed to help you get your IoT-related initiatives underway quickly and keep them operating efficiently.

Real-world case studies



Partnering for a successful pilot of 5G MEC virtual roadside units

The Arizona Department of Transportation (ADOT), Maricopa Association of Governments (MAG) and Verizon worked together to develop and test an IoT-based solution that helps alert drivers to changing road conditions and potential hazards. Using public multi-access edge computing (MEC) technologies and vehicle-to-everything (V2X) capabilities, the solution can help improve driver safety while effectively stretching scarce resources.



[Learn more](#)

“

If we can implement this system in the state of Arizona, we believe it will make drivers safer and better informed. We believe that we are being good stewards to our taxpayers by implementing something that's less costly and easier to operate and maintain.

”

– John Roberts,
Engineering Manager, ADOT

Ashley-Chicot Electric Cooperative deploys smart meters

With only 20 full-time employees, this electrical utility based in rural Arkansas works hard to serve its 5,700 residential accounts and manage power for more than 1,100 irrigation pumps, which are vital to the region's largely agricultural economic base. By adopting Verizon's Grid Wide: Intelligent Energy solution, Ashley-Chicot Electric Cooperative is able to deploy, provision, configure, monitor and control advanced smart meters that dramatically cut the time and errors associated with manual meter reading while also improving power balancing.



[Learn more](#)

“

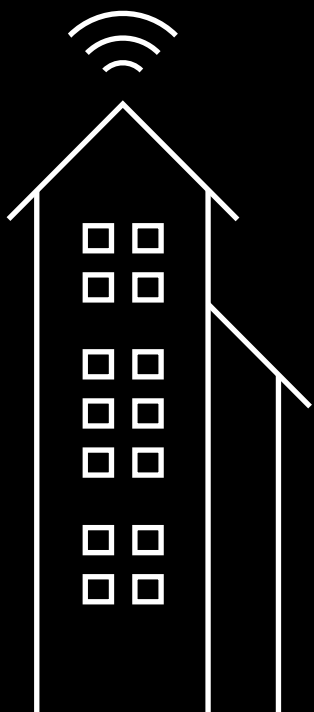
Usually technicians are in a bit of a hurry because they have a lot of meters to read in a short time. There are all kinds of logistical-type situations, and they can really interrupt your day.

”

– Rodney Chapman,
General Manager, Ashley-Chicot
Electric Cooperative



Building stronger communities through IoT-supported economic development



IoT technologies offer tremendous opportunities for local businesses. These technologies provide improved visibility all along the supply chain and manufacturing processes; enhance the monitoring of products, vehicles and facilities; and help control costs. And the extended reach enabled through IoT devices and applications streamlines last-mile connectivity and helps extend services to remote areas and previously underserved populations.

Appendix

IIJA resources and references

Here's a valuable collection of additional resources, links and references for readers to further explore the details and opportunities related to the IIJA. It's a comprehensive toolkit to support your journey in leveraging IIJA's transformative potential.



Government resources:

- [!\[\]\(815df092dd722ee9268ef8e6d0193e3a_img.jpg\) **Official IIJA overview:** Access implementation resources, provided by the Government Finance Officers Association \(GFOA\), for a more in-depth understanding of IIJA's provisions.](#)
- [!\[\]\(c72edb9626cad660f3a9f5fb0f22a68c_img.jpg\) **NOFO tracker:** This tracker from GFOA is a valuable tool for monitoring Notice of Funding Opportunity \(NOFO\) announcements related to IIJA. Stay updated on funding opportunities.](#)



Private financing and public-private partnerships:

- [!\[\]\(97faa0168e491544be255cfcab218e9b_img.jpg\) **U.S. Department of Transportation fact sheet on financial structuring of public-private partnership \(P3\) concessions \(contracts\):** This fact sheet offers insights and resources on project financing and the financial structures of P3 projects. Learn how P3s can be a strategic approach to optimizing resource allocation.](#)
- [!\[\]\(b2166b76608b8499cffc130bf1b1fe60_img.jpg\) **U.S. Chamber of Commerce infrastructure initiatives:** Discover the U.S. Chamber of Commerce's initiatives and resources related to infrastructure development and financing. Gain insights into how private financing can complement public funding.](#)



Financial planning and investment guides:

- [!\[\]\(746d018fdf6ab02bf5fb7681133e8b29_img.jpg\) **American Planning Association infrastructure resources:** The American Planning Association provides resources on infrastructure planning and investment strategies. Explore guidance for community planners and decision-makers.](#)
- [!\[\]\(5daa6eee1904cb6b9d765700250de764_img.jpg\) **National Association of Counties infrastructure resources:** The National Association of Counties offers resources and tools for county officials to navigate infrastructure financing and development.](#)



Research and reports:

- [!\[\]\(511a36c244659513b679df9c639945de_img.jpg\) **Brookings Federal Infrastructure Hub:** Delve into research and reports on infrastructure and policy analysis by the Brookings Institution. Gain insights into the broader context of infrastructure investment.](#)
- [!\[\]\(2c0783baf87a2728b2fe49eb1c34c456_img.jpg\) **Urban Land Institute reports:** The Urban Land Institute provides major reports and resources related to their Building Healthy Places Initiative, including publications on infrastructure planning, investment and development.](#)



Verizon resources:

- [!\[\]\(e492b5d52ab457a7a3c2826c4091dfee_img.jpg\) **Verizon IIJA webpage**](#)
- [!\[\]\(1d9440fab1f214291ce1c26a75f9c2cd_img.jpg\) **Fact sheet**
“Invest in the Internet of Things with IIJA.”](#)
- [!\[\]\(6be2e1cb461308cfbb51376f893366b1_img.jpg\) **Fact sheet**
“Smarter infrastructure with IIJA”](#)

Verizon C-Band holdings:



\$52.9 billion

invested in new C-Band spectrum, representing a 120% increase in Verizon's spectrum holdings⁶



161 megahertz

average nationwide, with a presence in all 406 available markets



140 megahertz

(minimum) of total spectrum in the contiguous United States



200 megahertz

in 158 mostly rural markets, covering nearly 40 million people

Conclusion

An opportunity to innovate

The Infrastructure Investment and Jobs Act offers state, local and tribal agencies and leaders a once-in-a-generation opportunity to reimagine their technology infrastructure and deliver more and better services to constituents.

It's also an opportunity to capitalize on advancements driven by the Internet of Things. Through this connected network of devices, software and systems, we're redefining how governments

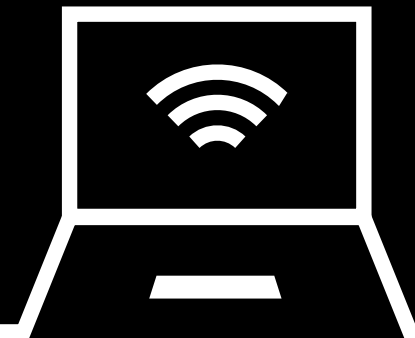
can serve the people, how business gets done, and how communities can come together to enhance last-mile connectivity and move forward together.



Verizon has been a consistently innovative technology partner of the public sector for decades. Our highly reliable, award-winning network and long-standing expertise in both high-performance wireless solutions and the Internet of Things make us a proven resource for identifying and helping you prioritize the most effective technology solutions for your community's needs.

Talk to a Verizon expert to explore your opportunities today. We're ready to answer your questions.

Call 1.855.408.2751 or visit our IJA page.



1. "H.R. 3684 - "Infrastructure Investment and Jobs Act," U.S. Congress, November 15, 2021. <https://www.congress.gov/bill/117th-congress/house-bill/3684/text>

2. *Ibid.*

3. "Ericsson Mobility Report," Ericsson, November 2023. <https://www.ericsson.com/en/reports-and-papers/mobility-report>

4. Rose de Fremery, "What is C-Band, and what does it mean for 5G?" Verizon, accessed January 22, 2024. <https://www.verizon.com/business/resources/articles/s/what-is-c-band-and-what-does-it-mean-for-5g>

5. *Ibid.*, U.S. Congress.

6. "Verizon C-Band auction results and impact to customers: Frequently asked questions," Verizon, accessed January 22, 2024. <https://www.verizon.com/business/resources/factsheets/verizon-c-band-spectrum-auction-frequently-asked-questions>

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