

Wi-Fi Planning

Campground and RV Park



Wi-Fi Planning

What You Need to Know About Your Campers and RV Park Guests' Wi-Fi Needs

More than 6 million North Americans have adopted the camping lifestyle, according to the 2018 North American Camping Report. But they're not ditching the Wi-Fi when they head outdoors.

A whopping 97% said they take technology with them while camping. Plus, "4 in 10 camper households overall say access to cell service or Wi-Fi impacts the amount they camp," states the report.

And Wi-Fi connectivity ranks No. 5 on those campers' list of must-haves.

97%

of campers take their technology with them while camping

- Cairn Consulting

Moreover, being on vacation doesn't deter your existing and potential customers from craving constant Wi-Fi connectivity.

"69% of employed vacationers planned to bring a work-capable device with them on vacation, and 67% of these said they expected to use the device for work-related purposes while vacationing," according to an Expedia survey.

Stand Out Among the Competition

As that demand for near continuous Internet connectivity continues to increase, successful campground/RV park owners must provide this must-have service to campers, RV park guests, and staff members.

Offering world-class Wi-Fi connectivity entices visitors to your campground or RV park and helps it shine amid the competition.

Free Wi-Fi ranked as the 5th most important campground amenity offered.



10 Questions to Ask Yourself Before You Plan Your Campground's or RV Park's Wi-Fi

Ask yourself these crucial questions to assess your Wi-Fi needs and your customers'. You'll then be better-informed to begin preparing your wireless network site plan.

1. What's the purpose of your Wi-Fi network?

Consider the why regarding this network. Ask yourself what is (or what are) the most important application(s) for this network. Determine applications that will be allowed to run on the network as well as any restrictions to those applications or others.

2. Where does the Internet service enter your property?

Understand how you are going to deliver Wi-Fi to your staff, campers, and RV guests. The location of the Internet Service Provider's (ISP) equipment will help you determine what is needed, such as Ethernet cabling, network Power-over-Ethernet (PoE) switches and/or wireless access points to deliver that service to your users. You can add fiber runs, hardened PoE switches, media converters, NEMA boxes, etc.

3. How far is the Internet service entry point from your desired coverage area(s)?

Knowing the distance from your ISP's equipment to the service area gives you a good idea of necessary equipment and where to place it.

For example, if your Internet service is coming into the basement of the main office, you may need to run cabling from the entry point to other equipment to connect an access point. That will provide Internet connectivity to the office and extend it to other access points throughout the property.

4. How much bandwidth are you receiving from your ISP?

The amount of bandwidth you receive from your ISP determines the maximum speed you can offer your staff, campers, and RV guests.

More bandwidth lets more users to connect and allows you to provide higher-quality Wi-Fi services. Consider increasing your bandwidth to ensure a positive Wi-Fi experience for all guests.

5. What is your approximate average number of users?

The average number of users ("user capacity") helps determine the number of devices that will likely access your wireless network.

Rule of thumb: Assume your network must support 2.5 devices per person, including smartphones, tablets, gaming devices or laptops, to determine the number of access points needed for your site.

6. What quality & type of service or level of access do you want to provide your guests?

When you know the quality of service to offer to your staff, campers, and RV guests, you can then determine the best placement for your access points for wireless capacity. Common infrastructure services include hotspot service, individual campsite/cabin/RV site service, and complete park services.

7. What is the construction of your buildings?

Wireless signals degrade when they travel through different materials. Concrete, wood, metal siding, fiberglass, and/or rebar can result in different levels of Wi-Fi signal degradation.

Understanding the construction of your obstacles in your RV park or campground will help determine the quantity and appropriate placement of your wireless access points.



8. Do you have Ethernet & Fiber/Power cable running out to each building or desired Wi-Fi location?

Having the proper, shielded Ethernet cable or fiber run already run to buildings or centralized locations makes the deployment of Wi-Fi very easy.

Don't have it? Then implement a secure wireless link or wireless bridge to carry the signal to a designated location. Doing so will avoid the need for additional cabling and costs, and it spares you the hassle of permits.

When considering a wireless bridge, use one that supports the same wireless speeds as the rest of your network. The more speed that the link provides, the better the experience for the camper.

9. How many campsites, cabins, or RV parks do you plan to equip with wireless access?

Consider the number of campsites, cabins or RV sites you would like to give Wi-Fi connectivity. That number can help you determine the required quantity and placement of access points and wireless bridges. Plus, you can determine the average number of users that will be on your network at any given time.

10. Do you plan to implement or expand an existing surveillance system?

Surveillance systems are becoming more commonplace in campground and RV parks. The systems provide crucial 24/7 visuals on key areas and add a level of comfort and security for your staff, campers, and RVers.

Surveillance systems also can present crucial evidence to protect your property in such cases as liability issues, vandalism, and theft.

When installing an IP surveillance system, you need to consider your site's available bandwidth.

Be aware that higher-resolution IP cameras will need more bandwidth than lower-resolution IP cameras do. Higher-resolution IP cameras provide sharper details, such as identifying facial features and license plate numbers.

Ideally, you should put your security system on a separate network segment to divide up the amount of bandwidth/speed being used between each segment. That allows you to allocate limits as needed.

41%

of campers said that having free Wi-Fi influenced their decision regarding what campground to stay at

- Cairn Consulting



Definitions:

Wireless Access Point¹ (WAP or AP) – A device that is located at the edge of a local area (wired) network (LAN) that transmits and receives data wirelessly to and from wireless client devices such as smartphones, laptops, printers, tablets, other APs and client bridges to facilitate connectivity between these devices and the Internet or a network.

Power-over-Ethernet² (PoE) – A technology for wired Ethernet LANs that allows the electrical current necessary for the operation of each device to be carried by the data cables rather than power cords. The result is lower cost, less downtime, easier maintenance, and greater installation flexibility than with traditional wiring.

Throughput - In computer networks, bandwidth is synonymous with data transfer rate, the amount of data that can be carried from one point to another in a given time period (usually a second).

Hotspot Service – A specific, designated area where an access point provides Wi-Fi service and Internet access. Your guests will need to visit specific locations in order to access your Wi-Fi services. These could include the campground store or office, luxury cabins or outdoor recreational facilities.

Wireless Bridge³ – A point-to-point link that consists of two devices wirelessly linked together to enable the connection of different LAN segments enabling separate networks to communicate with one another. These wireless bridges are often placed on each end of the property to be connected and wired into another device such as a network switch, IP camera, and router or access point.

IP Surveillance System⁴ - A digitized and networked version of closed-circuit television (CCTV). In an IP surveillance system, an IP camera records video footage and the resulting content is distributed over an IP (Internet protocol) network.





Nine Must-Know Campground Wi-Fi Best Practices

1 Consider both coverage and capacity when determining the number of access points needed

Creating a balance between Wi-Fi coverage and user capacity when doing your Wi-Fi site planning is critical. Consider that each camper, on average, will bring approximately 2.5 mobile devices to your campground and the type of service/network those clients are permitted to use.

Devices include smartphones, smart watches, tablets, gaming devices, and laptops. Having the right balance of coverage and capacity is critical.

Access points must be powerful enough to provide coverage while offering enough network capacity to handle multiple devices seamlessly to customers.

2 Support guests' entertainment applications with the latest 11ac Wave 2 Wi-Fi technology

Providing Wi-Fi access within your campground means your customers will not be paying data charges on their cellular devices. Guests then are more likely to use the wireless network for their network use.

Today's newest smartphones, tablets, and laptops now support dual-band wireless capabilities. Deploying dual-band access points that operate on both the 2.4 GHz and 5 GHz frequencies concurrently provide support for both older and newer wireless devices, and allow the AP to handle more users, while helping to balance/offload higher levels of network traffic through band steering.

High-bandwidth intensive applications (e.g., video) will take up a majority of your bandwidth. Installing access points with the latest, high-speed 802.11ac technology will provide support for these frequently used higher bandwidth applications. Using dual-band 11ac access points will greatly improve your campers' experiences and inspire your customers to give positive online reviews long after their stay.

Moreover, 802.11ac access points offer faster wireless speeds and greater device capacity than previous wireless standards such as 802.11n. Introduced in 2013, 11ac access points operating at their maximum data rates can reach theoretical speeds that are more than double that of existing 802.11n access points.

The biggest benefit of using 11ac technology (in addition to its ultrafast speed) is its ability to handle the high-density requirements driven by the growing number of mobile devices used per person.

3 Provide industry-standard security measures

Secure and control access to your network. Protect and block important business office assets and sensitive guest information on the network from unauthorized access, and still allow staff and campers to get connected.

Use only hardware and utility software that adheres to network industry security standards and accepted network security protocols, such as Wi-Fi Protected Access Encryption (WPA Personal and WPA2-Enterprise) and 802.1X with RADIUS for user authentication. (802.1x requires a backend RADIUS server.)

Wireless standards and protocols protect and encrypt data as it moves across the network, ensuring your business and guests' sensitive information stays protected.

Establish a secure network segment that blocks access to administrative computers and servers but allows campers and staff to access the Internet and other network resources.

Create and use secure virtual LAN segments. Assign them to single or multiple access points while regulating network bandwidth based on the needs of specific virtual network segments, such as surveillance cameras. Also, isolate campers' devices to keep them secure from other campers' devices while on the network.



4 Use wireless hardware specifically rated for use in harsh outdoor environments

Access points designed for use in outdoor settings have different Ingress Protection Ratings (IP Ratings).

You typically will find ratings from IP55 to IP68 for outdoor access points. An IP68 rating is one of the highest IP ratings available for outdoor access points with a waterproof and dustproof casing.

Most outdoor-rated access points will perform well in harsh conditions, but APs with stated IP ratings should be used when installing wireless in an outdoor application.

5 Provide a clear line of site between wireless hardware

To optimize wireless connections between access points and bridges, examine your outdoor landscape when planning your Wi-Fi deployment.

Obstacles: Wireless signals degrade when they travel through obstacles or meet with interference. Trees, hills, power lines, RVs, bathhouses, and neighboring campsites can result in differing levels of Wi-Fi signal degradation. They can even become complete signal barriers.

Weather: Weather conditions can also be a factor in the environment. For example, heavy rain and wet pine trees can cause reflection and refraction, leading to diminished wireless signals.

Identifying a clear path from one access point to another will ensure wireless signals get delivered to the specified area.

Seasons: Planning to deploy your access points during the winter months? You may have a clear RF line of sight (LoS) initially, but with the new foliage growth in spring and summer, it could end up blocking that once clear RF LoS. Consistently maintaining the foliage to keep a clear LoS may be required; if this is not possible, consider an alternative site plan.

Taking the challenges of your outdoor environment (and application use and wireless client capabilities) into account will help determine the quantity and appropriate placement of your wireless access points and or wireless bridges. Figure out the approximate coverage area, or the distances from one point to another point where trees are not an obstruction. Then determine which product(s) will be powerful enough to best meet those requirements.

Is 802.11ac Wave 1 or Wave 2 better?

Wave 1 access points make up the majority of available 802.11ac access points on the market and provide a marked increase in speed and capacity handling than previous technology.

Wave 1 APs generally will not require IT administrators to make widespread network infrastructure changes, making network planning straightforward.

Because of Wave 2's additional features, however, network design adjustments may be needed. The theoretical speeds of Wave 2 will reach up to 7 Gbps, though with the limited number of Wave 2 access points and wireless clients on the market, pricing will remain at a premium for some time.

Definitions:

Dual-Band – An 802.11 (Wi-Fi) access point that uses the 2.4 GHz and 5 GHz bands. Dual-band access points can provide load balancing. For example: New 11ac-capable laptops, iPhones® and tablets can receive on the 5 GHz band, and older, 11n/a/b/g/n-capable devices can simultaneously receive on the 2.4 GHz band.

802.11ac⁷ – Also known as Gigabit Wi-Fi, 802.11ac is a specification applicable to wireless local area networks (WLANs). It operates on the 5 GHz band and facilitates simultaneous streaming of high-definition (HD) video to multiple clients in homes and businesses, as well as faster wireless synchronization and backup of large files.

WPA Personal⁸ – Short for Wi-Fi Protected Access, WPA is a security standard to secure computers connected to a Wi-Fi network. WPA and WPA2 are concurrent security standards. WPA addresses the majority of the IEEE 802.11i standard; and the WPA2 certification achieved full compliance. However, WPA2 will not work with some older network cards, thus the need for concurrent security standards.

WPA2-Enterprise⁹ – Wi-Fi Protected Access-Enterprise (WPA-Enterprise) is a wireless security mechanism for small to large enterprise wireless networks. It is an enhancement to the WPA security protocol with advanced authentication and encryption. WPA-Enterprise uses the Remote Authentication Dial-in User Service (RADIUS) protocol to manage user authentication.

802.1X with RADIUS¹⁰ – The 802.1X standard is designed to enhance the security of wireless local area networks (WLANs) that follow the IEEE 802.11 standard. 802.1X provides an authentication framework for wireless LANs, allowing a user to be authenticated by a central authority.

Virtual LAN¹¹ – A local area network (LAN) provides the nodes connected to it with direct access to one another. VLANs let network administrators partition their network to match the functional and security requirements of their systems without having to run new cables or make major changes to their current infrastructure.

Ingress Protection Ratings¹² – A two-digit number established by the International Technical Commission, is used to provide an Ingress Protection rating to electronic equipment or to an enclosure for electronic equipment. The first digit following "IP" indicates the level of protection against ingress of solid objects. The second digit indicates the level of protection against ingress of liquids; the higher the numbers, the greater the protection against both types of ingress into the enclosure.

Wireless Repeater or Wireless Range Extender¹³ – This type of wireless repeater expands the reach of a wireless LAN. The device is between a base router or access point and a client too far to receive acceptable service or one on the other side of a barrier.

Wireless Client Bridge¹⁴ – The hardware component is used to connect two or more network segments that are physically separated.



6 Use wireless bridges instead of wireless repeaters to extend the network

Wireless repeaters or wireless range extenders may seem convenient, but they can be challenging to run, and they cut the available wireless speed in half every time the signal is rebroadcasted. They ultimately slow down your network performance and will likely leave your campers frustrated.

Instead of repeating the signal, a better option is to extend the wireless network signal to implement a secure wireless link using two wireless bridges.

This method of carrying the signal to a designated location avoids major speed loss and frees up the access point to be dedicated to send and receive data to and from client devices.

7 Plan for power

Underpowered access points or brownouts can cause intermittent connection problems, such as rebooting or disconnections.

Consult with a local electrician to install weatherproof electrical boxes in the areas where you will deploy access points and/or other devices that need power. An electrician can determine the appropriate solution for supplying the right amount of power, equipment, grounding, and surge protection to each location. Be sure to leave room for possible future expansion, and to ask your electrician to quote or build out those areas as well.

8 Understand the importance of mounting height, types, and surfaces

Most outdoor access points and wireless bridges include pole- or wall-mounting hardware. Those devices can be mounted on existing light poles, galvanized poles, or outbuildings. Access points need to be mounted at a height that makes their signals accessible to most of your users.

Access points deployed near RVs should be installed an estimated 5-10 feet above the standard RV roofline. Remember: Wireless bridges connecting to other wireless bridges are communicating at farther distances and need a clear line of sight to ensure the best performance. The higher the mounting point, the better.

9 Consult with experts for site surveys and network designs

Outdoor Wi-Fi network design can be complicated due to its high-density needs and varying outdoor considerations. Consult with wireless experts to perform a campground site survey by emailing them at sales@engeniustech.com.

A qualified expert will ask questions designed to gain a deeper understanding of your existing network, its issues, and future technology, building, or coverage area expansion plans.

Once your survey is complete, a network design and deployment plan will specify the hardware needs and deployment locations for access points and other hardware to ensure the best available wireless coverage and network connectivity.



About EnGenius Technologies

Established in 1999, EnGenius Technologies, Inc., headquartered in Costa Mesa, California, is an industry expert in wireless communications and RF technology. The company delivers feature-rich, long-range, business-class wireless communications technology for voice and data. The versatility and performance of the company's solutions lower total cost of ownership, increase productivity, and maximize return on investment.

Why EnGenius?

- Award-Winning Industry Expert
- Ranked Among Top 3 Providers of Wireless Access Points in North America¹⁸
- Comprehensive Line of Business-Class Solutions
- Reliable, High-Quality Hardware & Free Utility Software
- Best Price/Performance Value in the Industry
- Lower Total Cost of Ownership & Maximum Return on Investment
- No Annual License or Subscription Fees
- Free System Design Services & Technical Support

For a limited time, try two 11AC wireless outdoor bridges and connect your campground/RV park at blazing fast 11AC speeds

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182014 Stand-Alone Access Point Shipments as reported by The NPD Group.

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"By combining two different EnGenius appliances, we were able to eliminate the need and cost of burying cable, while creating a reliable guest network that was both fast and available anywhere on the grounds."

Chris Trombley, President
Cepstrum Technologies, Inc.
 Watertown, NY

"Through my research, I found a wooded RV park that had deployed the EnGenius products and stated they haven't found anything better for penetration strength. The EnGenius products are by far the most powerful and the best-fit device that I've been able to find, even when compared to Colubris, Meraki and certain Cisco devices."

Keith Maxwell, IT Consultant for
Anaheim RV Village
 Anaheim, CA

Page 2

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Page 4

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