



## White Paper | Connected School Buses

**Empowering Public School Systems:** MCA's Cellular Networking Team Delivers E-Rate Funded School Bus Wi-Fi Solutions

### Closing Homework Gaps and Bridging the Digital Divide

In today's digital age, the need for reliable internet access in education has never been more critical. With a growing dependence on online learning tools, digital homework platforms, and virtual classrooms, students require constant connectivity to succeed.

However, many students, particularly in under-served or rural areas, face limited access to the internet once they leave the school grounds, creating a significant barrier known as the "Homework Gap." This gap affects students who cannot complete assignments or access resources at home due to a lack of internet connectivity, hindering their academic progress.

School buses, which transport students for hours each day, have emerged as a key solution to bridging this divide. By equipping buses with Wi-Fi, schools can provide internet access to students during their commutes, turning travel time into productive learning time. This innovative approach not only helps to

address the "Homework Gap" but also tackles the broader issue of the "Digital Divide" by extending connectivity beyond the classroom to reach students who might otherwise be left behind.

Mobile connectivity solutions empower students to engage with learning materials, complete assignments, and stay connected with teachers, ensuring they have the tools needed for success in an increasingly digital world.

### Understanding the E-Rate Program

MCA CNS delivers the technical backbone for school bus Wi-Fi initiatives. Our solutions are purpose-built for educational environments, providing high-performance routers, antennas, and network infrastructure components. Our expert team ensures that every piece of hardware is pre-configured for seamless integration with existing networks and is ready for remote management through tools like NetCloud. This comprehensive approach not only guarantees robust connectivity but also ensures that the solution is fully



## Funding School Bus Connectivity with E-Rate

Closing Gaps and Bridging Divides

Understanding the E-Rate Program

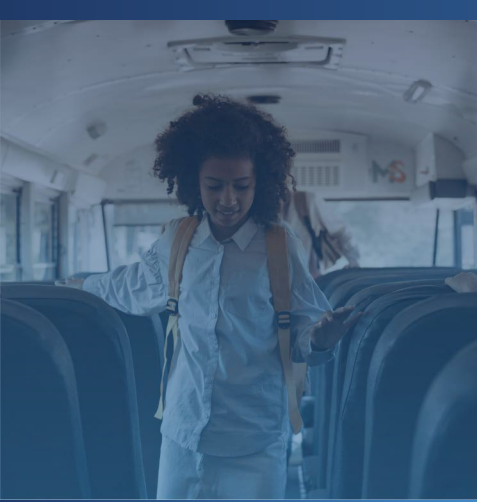
The Need for School Bus Wi-Fi Connectivity

The Benefits of Mobile Networking for K-12

Mobile Hardware and Expert Services

How to Get Started with E-Rate Funding

Engaging the CNS Team at MCA



Equip buses with secure and reliable Wi-Fi, funded through E-Rate, ensuring students access learning platforms during commutes.



E-Rate-funded bus Wi-Fi extends internet access to students without home broadband, promoting equitable education beyond the classroom.



compliant with CIPA standards, a critical requirement for E-Rate funding.

In recent years, the FCC has expanded the scope of the E-Rate program to address the evolving needs of educational institutions. One of the most significant updates has been the approval of school bus Wi-Fi under Category 1 of the program, meaning that schools can now apply for funding to equip their buses with internet access. This change reflects a growing recognition of the vital role mobile connectivity plays in today's education, particularly for students who may not have reliable home internet access. By connecting school buses, districts can extend learning beyond the classroom and provide continuous access to digital resources.

Schools can leverage E-Rate to fund a wide range of mobile connectivity solutions, including routers, antennas, cabling, and installation services. Additionally, E-Rate covers the cost of cellular services required to maintain these connections. This comprehensive funding support allows schools to implement Wi-Fi on their buses without significant financial strain, empowering them to provide equitable learning opportunities for all students. By taking advantage of this program, school districts can ensure that their students remain connected, productive, and engaged, even while in transit.

### The Need for School Bus Wi-Fi

The COVID-19 pandemic fundamentally reshaped the education landscape, driving the rapid adoption of remote learning technologies and digital tools. Schools and students had to quickly adapt to Learning Management Systems (LMS) such as Google Classroom, Khan Academy, and Blackboard to ensure continuity in education. These platforms, while effective in supporting learning outside the classroom, highlighted a stark disparity: the "Homework Gap." Many students, particularly those in low-income households or rural areas, lacked reliable home broadband access, putting them at a significant disadvantage when it came to accessing digital lessons, completing assignments, or participating in online discussions.

School bus Wi-Fi presents a powerful solution to this problem. By equipping buses with internet connectivity, schools can ensure that students without home broadband can access their LMS platforms, complete homework, and stay engaged with their studies while on the road. These buses essentially become mobile learning hubs, extending the educational experience beyond school grounds and into the communities they serve.

For students with long commutes, Wi-Fi-equipped buses can transform what would otherwise be idle time into productive hours, allowing them to stay connected to their coursework. Moreover, school buses equipped with Wi-Fi can serve broader community purposes. In under-served areas, these buses can be parked in strategic locations to offer internet access to families who lack connectivity at home, helping to further bridge the digital divide.

The benefits of school bus Wi-Fi extend beyond just students. By transforming school buses into mobile connectivity centers, districts can engage the community in new ways, providing internet access for parents seeking job opportunities or community members accessing vital online services. In this way, school bus Wi-Fi doesn't just address the immediate educational needs of students—it supports broader social equity goals and ensures that all members of the community can participate in the digital economy.

### Benefits of Mobile Networking Solutions for K-12 Applications

Mobile networking solutions, particularly school bus Wi-Fi, offer essential advantages for K-12 schools, students, and the community. These benefits are crucial as schools increasingly rely on digital tools and remote learning, ensuring equitable access to resources for all students.

*On the next page we outline some key benefits of mobile networking for schools.*

- **Bridging the Digital Divide:** Mobile networking solutions eliminate barriers for students lacking reliable home internet access. By equipping school buses with Wi-Fi, schools ensure students can complete homework, access Learning Management Systems (LMS) like Google Classroom and Blackboard, and participate in online learning while commuting. This helps close the "Homework Gap" by extending learning opportunities beyond the classroom.
- **Enhancing Educational Opportunities:** Wi-Fi-equipped buses enable students to make productive use of their commute. Instead of losing valuable time on long bus rides, they can access educational resources, submit assignments, and collaborate with peers. This fosters continuous learning, ensuring students stay connected to their education, no matter their location.
- **Supporting Remote Learning and CIPA Compliance:** As remote and hybrid learning models persist post-pandemic, school bus Wi-Fi ensures students stay engaged even when not at school. MCA's networking solutions allow IT teams to apply their own protocols to maintain Children's Internet Protection Act (CIPA) compliance, ensuring students access only approved websites and LMS platforms during bus rides.
- **E-Rate Funding Maximization:** School bus Wi-Fi solutions are eligible under the E-Rate program, providing schools with funding for routers, antennas, and cellular services to support distance learning. By leveraging E-Rate, schools can build sustainable, affordable mobile connectivity infrastructure, ensuring equitable access to learning for all students.

In summary, mobile networking solutions in K-12 education are essential for bridging the digital divide, improving safety, supporting remote learning, and ensuring compliance with security standards like CIPA. These solutions provide schools with the tools needed to meet modern educational challenges while creating safer, more connected environments for students.

### MCA's School Bus Wi-Fi Solutions: Hardware and Services

Our Cellular Networking Solutions (CNS) team is dedicated to delivering comprehensive, high-performance mobile connectivity solutions that empower schools to bridge the digital divide and provide essential internet access to students.

Our School Bus Wi-Fi solutions include a range of hardware, services, and support to ensure seamless deployment and integration into your school's existing infrastructure.

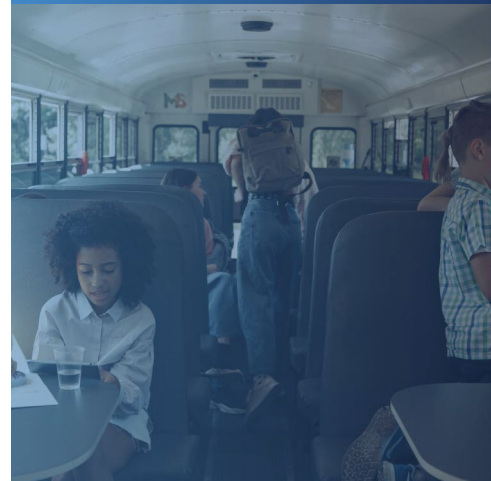
#### Advanced 5G Routers for Reliable Connectivity

MCA partners with Ericsson to provide high-performance routers specifically designed for school bus applications, ensuring that students and staff stay connected on the move.

- **Ericsson Cradlepoint R1900:** This robust 5G router provides advanced performance for mobile learning environments with Cat 20 LTE and 5G connectivity. Equipped with Wi-Fi 6 and Bluetooth capabilities, the R1900 supports up to 100 Wi-Fi users, making it an ideal choice for high-demand settings. Built-in GNSS with Dead Reckoning offers enhanced GPS functionality, and four Ethernet ports allow for versatile connectivity. With advanced security features, this router ensures that sensitive data is secure while supporting up to 10 VPN tunnels.
- **Ericsson Cradlepoint R980:** Designed for both LTE and 5G networks, the R980 router delivers Cat 19 connectivity along with Wi-Fi 6 to support up to 50 users. With two Ethernet ports and GNSS/GPS support, this router is well-suited for school bus applications where reliable 5G connectivity is needed. The R980 also supports up to 20 VPN tunnels, providing a secure and high-performance solution for on-the-go connectivity.



School bus Wi-Fi ensures students without reliable home internet can access LMS platforms like Google Classroom during commutes, closing the Homework Gap.



While not supported by the E-Rate program, Wi-Fi-equipped buses support real-time communication, video monitoring, and data offloading.





This partnership maximizes E-Rate funding for school connectivity, covering routers, antennas, cabling, and service, while ensuring compliance and budget efficiency.



The Mobility Brothers excel in large-scale fleet deployments, completing scores of successful school bus connectivity projects in 2023 to enhance student access to learning.

**DEVPROV+**



## High-Performance Antennas for Maximum Coverage

In partnership with leading manufacturers such as Mobile Mark and Poynting, MCA offers a wide range of antennas designed to optimize connectivity across school buses, ensuring robust and reliable signals:

- **Mobile Mark LTM9 and MX9 Series:** These antennas offer multi-band capabilities, supporting both 5G and Wi-Fi connections. Their durable design ensures consistent performance in varying weather conditions, providing high-speed internet access for students on the go.
- **Poynting MIMO and SWIRL Series:** With advanced MIMO technology, these antennas improve signal strength and coverage, making them ideal for school buses traveling through both urban and rural areas. Their compact design allows for easy integration with existing bus systems. The SWIRL comes with the added benefit of an integrated enclosure for housing routers.

## Router Provisioning and Configuration

Our DevProv+ services ensure that every router is pre-configured for seamless integration with your existing network infrastructure. Our configuration services also include remote management tools like NetCloud, AirLink Mobility Manager, and Digi Remote Manager (*dependent upon routers selected*), allowing school IT teams to monitor and manage Wi-Fi performance across all buses.

## Custom Cabling, Enclosures, and Professional Installation Services

MCA's CNS team designs and manufactures custom cabling and durable enclosures specifically built for school bus Wi-Fi solutions, ensuring long-lasting performance in demanding mobile environments. To complement these solutions, our partnership with The Mobility Brothers provides expert installation services, ensuring efficient and professional deployment across school bus fleets. This combination of MCA's high-quality hardware and expert installation guarantees seamless integration and reliable performance.

**MCA's school bus Wi-Fi solutions offer cutting-edge technology and services tailored to the specific needs of K-12 school districts. From advanced 5G routers and antennas to custom installation and provisioning services, MCA is your trusted partner in delivering reliable, high-speed mobile connectivity that ensures students have access to the resources they need on the go.**

## The Need for School Bus Wi-Fi

Applying for E-Rate funding can seem daunting, but MCA is here to simplify the process for your school district. We guide schools step-by-step through the application to ensure you take full advantage of the available funding for your school bus Wi-Fi solutions.

- **Eligibility and Application Process:** Begin by determining your school district's eligibility for E-Rate funding. Eligible expenses under Category 1 now include Wi-Fi routers, antennas, cabling, installation services, and cellular connectivity. MCA can help assess your needs and ensure that your application is focused on eligible services to maximize your funding.
- **FCC Forms 470 and 471:** The first step in the application process is filing Form 470, which opens your project for bidding. After selecting the most cost-effective service provider, Form 471 is submitted to request funding from the Universal Service Administrative Company (USAC). MCA assists in drafting the proper documentation for both forms, ensuring your project meets all criteria and timelines.
- **Maximizing Funding:** MCA's CNS team helps schools not only apply for E-Rate funding but also maximize it. We ensure that all eligible equipment (such as routers, antennas, cabling, and cellular services) is included in the funding request. From detailed product proposals to accurate pricing, MCA provides the support necessary to secure the highest possible reimbursement.

- **Timelines and Support:** The E-Rate funding cycle typically runs on an annual basis, with application windows opening early in the year. MCA provides timely reminders and guidance on key deadlines, ensuring your application is submitted promptly. We offer ongoing support throughout the process, from assessing needs to final approval and implementation.

By partnering with MCA, your school district can confidently navigate the E-Rate funding process and deploy the mobile connectivity solutions your students need to succeed. Let us help you get started and make the most of your E-Rate funding today!

## Connecting With Our Cellular Networking Solutions Team

### Ready to take the next step toward ensuring reliable school bus connectivity for your district?

MCA has proudly partnered with thousands of schools and hundreds of districts across the United States, delivering comprehensive voice, data, and security solutions that transform educational environments.

Our extensive experience spans projects that include everything from school bus Wi-Fi and in-building wireless solutions to two-way radios, mass notification systems, and advanced security technologies.

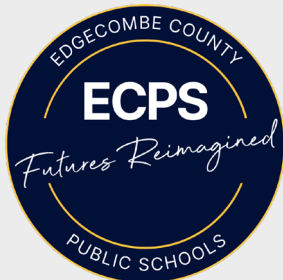
MCA is committed to empowering schools with the tools they need to ensure safety, connectivity, and efficient communication, helping educational institutions create secure and technology-driven learning environments that support students, teachers, and administrators alike.

MCA's CNS team is here to guide you through every phase, from product selection and E-Rate funding to installation and ongoing support. Whether you need a consultation, have product inquiries, or want a detailed quote for installation services, our team of experts is ready to assist.

Don't wait—connect your students to the resources they need today. Get in touch with MCA's CNS team to explore the best mobile connectivity solutions for your school buses and maximize your E-Rate funding.

**Contact us now and ensure that your students stay connected and continue learning, both in the classroom and on the move.**

**Call Us >> 888.550.8728**

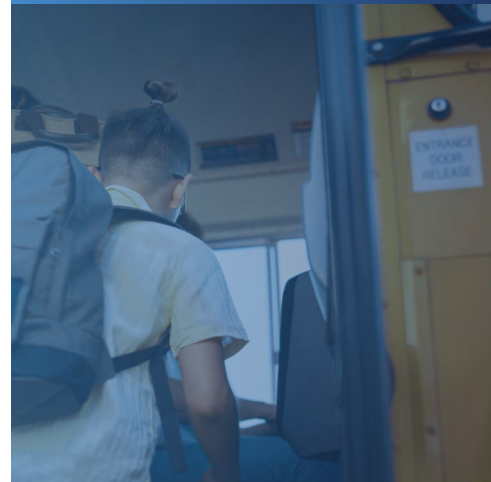


*"Edgcombe is a rural school district with bus routes being as long as an hour plus for many of our students. Providing students with wi-fi on buses has allowed students the ability to complete classwork and homework while traveling to and from school."*

**Joseph Hayes**  
Technology Director



MCA's Cellular Networking Team has 30+ years of experience with mobile connectivity, delivering pre-configured, CIPA compliant solutions for seamless school bus Wi-Fi.



The Mobility Brothers have over 900K+ successful fleet installations, under their belt delivering efficient, high-quality Wi-Fi deployments with expert, experienced teams.



## About MCA

MCA is one of the largest and most trusted technology integrators in the United States, offering world-class voice, data, and security solutions that enhance the quality, safety, and productivity of customers, operations, and lives.

More than 65,000 customers trust MCA to provide carefully researched solutions for a safe, secure, and more efficient workplace. As your trusted advisor, we reduce the time and effort needed to research, install, and maintain the right solutions to make your workplace better.

Our team of certified professionals across the United States delivers a full suite of reliable technologies with a service-first approach. The MCA advantage is our extensive service portfolio to support the solution life-cycle from start to finish.

### MCA CNS Headquarters

📍 605 Eastowne Drive  
Chapel Hill, NC 27514

☎️ 888.550.8728

✉️ [cnsinfo@callmc.com](mailto:cnsinfo@callmc.com)

🌐 <https://lte.callmc.com>

The MCA logo is displayed in white on a dark blue background. The letters 'M', 'C', and 'A' are in a clean, sans-serif font. The letter 'C' is stylized with a blue circular graphic element inside it, resembling a signal or a network node.