

How many people did your ARDC funded project directly impact? Explain how you arrived at your number.

Over the course of this two-year initiative, we successfully recruited, trained, and licensed 15 new amateur radio operators, significantly expanding our volunteer base and enhancing local communications resilience. Our team contributed directly to public safety operations, including the successful rescue of two individuals during a 4K run—demonstrating the real-world value of amateur radio in emergency scenarios.

Our communications trailer was deployed at over 50 events, including ARRL Field Day exercises, public safety demonstrations, and various community functions. These outreach efforts introduced hundreds of individuals to amateur radio, highlighting its importance in both emergency preparedness and community service. This consistent public presence not only elevated awareness but also strengthened relationships with local agencies and the general public.

What were your goals and objectives for this project? Did you meet those goals? If you didn't meet some of them, what have you learned?

The project launched in the transitional period following the COVID-19 pandemic lockdowns. Our original budget was developed based on pre-pandemic pricing, and as a result, we were able to meet approximately 80% of our project goals.

We successfully purchased and completed the interior of the communications trailer, which is now fully functional and in regular use. However, due to increased costs, we were unable to complete several planned enhancements. Specifically, we were not able to:

- Apply the custom exterior wrap, which would have served as a strong visual promotion for amateur radio,
- Purchase a carport cover to protect the trailer's exterior and the future wrap,
- Acquire stabilizers, an awning, and upgraded tires.

Despite these limitations, the trailer remains operational. We currently use a pop-up tent to provide shade for operators and scissor jacks for stabilization. When stationed for extended periods, we use blocking to ensure additional stability.

We remain committed to completing these additional improvements as future funding allows.

Research and development projects: Fully describe the status of each deliverable.

The communications trailer is currently outfitted with two fully operational radio stations. Each station features an Icom IC-7300 HF transceiver, a Dell OptiPlex computer with dual monitors, and a wireless keyboard and mouse.

- Station One includes a Yaesu FTM-400 for VHF/UHF operations, a TYT dual-band DMR radio, and a Motorola STL P25 radio connected to the State of Louisiana's LWIN system, supporting interoperability across public safety agencies.
- Station Two features a Kenwood TM-D710A for voice and APRS functionality, along with CB and marine band radios. The second HF setup is optimized for digital communications, utilizing an Icom AH-4 antenna tuner paired with a foldable Shakespeare Marine HF antenna. This antenna system is mounted to the trailer and can be deployed and operational within minutes.

To support operations, the trailer includes mass charging stations for Motorola and other commercial radios, providing critical recharging capabilities for public safety personnel. A Motorola tabletop 70cm repeater is also installed, enabling on-site communications among volunteers and via trailer-assigned UHF radios.

The operational area is climate-controlled and equipped with a coffee maker, television, whiteboards, and an air conditioning unit for comfort and functionality. At the rear of the trailer, a 3-foot partitioned storage area houses a 6kW portable generator capable of powering the entire trailer.

Power is supplied through a 30-amp RV-style shore power plug, connected to sense relays that manage 120V distribution. In the event of power loss, the system automatically transitions to 12VDC via two deep-cycle batteries. These batteries are rechargeable via shore power or a pair

of foldable solar panels. Additionally, two 40-amp power supplies provide backup power for lights and radios.

The trailer is equipped with essential safety supplies, including high-visibility vests, flashlights, emergency tape, and road flares. Hydration and food rations (bottled water and MREs) are also stored on board. Two six-gallon fuel containers provide extended operational capacity, allowing for up to 24 hours of continuous use without external support.

Miscellaneous supplies—including coaxial cables, antennas, extension cords, and power cables—are also stored in the rear compartment, ensuring the team is prepared for a wide range of deployment scenarios.

Provide links to any public documentation of your project or findings.

<https://www.facebook.com/groups/emcomkc5dr/media/albums>

What advice would you give to other projects trying to do something similar? Did your project generate anything that you want to share with others?**Key Lessons Learned from Converting a Cargo Trailer into a Mobile Communications Unit**

If you're considering converting a cargo trailer into a mobile communications or emergency support trailer, here are some important insights we've gained through our experience:

1. Compare Finished vs. Custom Builds

- Evaluate the cost difference between buying a pre-built communications trailer and converting a standard cargo trailer.
- Custom builds may offer flexibility but often require more time, labor, and coordination across multiple skill sets.

2. Reinforce the Roof Early

- Most standard cargo trailer roofs are not designed to support heavy equipment like rooftop air conditioning units or antennas.
- Be sure to order the roof reinforced during the initial trailer purchase or have a structural upgrade done before installing any rooftop components.

3. Budget Thoroughly

- Account for all possible components, including smaller or overlooked items such as cables, mounting hardware, stabilization gear, insulation, lighting, and signage.
- Don't forget to include contingency costs for price fluctuations or unexpected needs.

4. Verify All Quotes Before Submitting a Project Proposal

- Prices—especially post-COVID—can vary significantly from initial estimates.
- Always confirm current quotes for materials, labor, and equipment before finalizing your budget or submitting for grants or funding.

5. Plan for Multidisciplinary Skills

- A custom build will likely require expertise in:
 - Electrical work (AC and DC)
 - Carpentry and insulation
 - Antenna systems and RF grounding
 - Computer/network setup
 - HVAC installation
- Ensure your team has access to individuals with these skills—or budget for professional help.

6. Ensure Proper Load Balance and Trailer Safety

- Tongue weight and load distribution are critical for safe towing.
- A trailer with poor weight distribution can sway dangerously at highway speeds.
- Aim for proper balance: approximately 10–15% of the trailer's weight should rest on the tongue.

These practical considerations can help you avoid common pitfalls and ensure your project is safe, effective, and sustainable in the long term. Planning ahead, budgeting realistically, and involving the right people from the start are the keys to success.

Describe any changes that were made to your project or budget.

While some of the planned enhancements—such as the exterior graphic wrap, stabilizer system, awning, and upgraded radial trailer tires—were deferred due to budget constraints,

these items remain part of our future development plan. Importantly, we were able to complete all core operational elements of the trailer within the originally submitted budget.

The project benefited from several generous in-kind contributions, which helped offset costs. Notably, the solar panels and charge controller were donated, as were the chairs used in the trailer's interior workspace. Additionally, the project was made possible through a significant investment of volunteer time, with many individuals contributing skilled labor and technical expertise to bring the project to completion.