

PREPAREDNESS UNIVERSITY

Citizen Emergency Communications

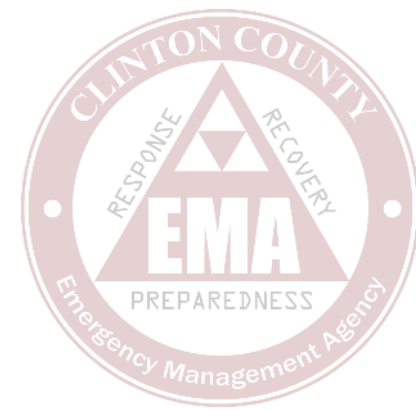
Are You READY?

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Overview

- Preparedness: Your Personal Insurance Policy
- Cellular Communications
- Family Radio Service (FRS)
- General Mobile Radio Service (GMRS)
- Ham Radio (Amateur Radio)
- Secure Messaging Apps
- Satellite Communications
- Communications Accessories to Enhance Effectiveness

Preparedness: Your Personal Insurance Policy



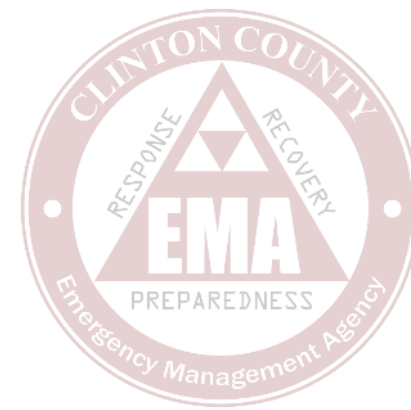
Preparedness is like an insurance policy you take out on yourself and your household. The coverage and deductible are entirely up to you. Every decision you make about preparedness is an investment in your ability to navigate crises.

Bare Minimum Policy (Liability-Only Coverage)

- Covers only the most common, **short-duration emergencies** (hours - days).
- Focus on **immediate needs**: food, water, flashlight, basic first aid.
- **Low investment**, but limited protection.



Preparedness: Your Personal Insurance Policy



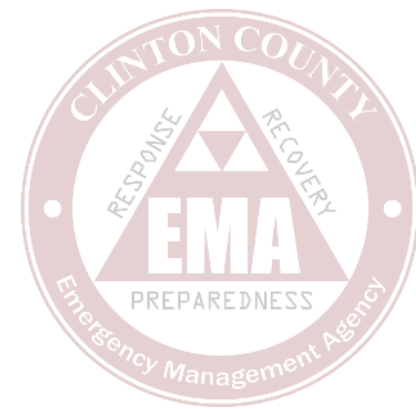
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Moderate Coverage Policy (High-Deductible Plan)

- Covers a **broader range of situations** but requires adaptation and resourcefulness (days – weeks).
- More self-reliance required, **fewer pre-packed solutions**.
- **Medium investment**, with flexibility in extending coverage over time.



Preparedness: Your Personal Insurance Policy



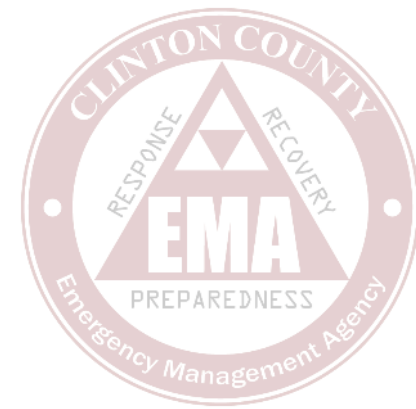
Preparedness is like an insurance policy you take out on yourself and your household. The coverage and deductible are entirely up to you. Every decision you make about preparedness is an investment in your ability to navigate crises.

Comprehensive Policy (Full-Coverage Preparedness)

- Covers a **wide array of emergencies**, including long-term disruptions (weeks – months).
- **Requires more maintenance** and periodic updates to keep supplies fresh.
- **Higher upfront cost** but ensures maximum readiness.



Preparedness: Your Personal Insurance Policy



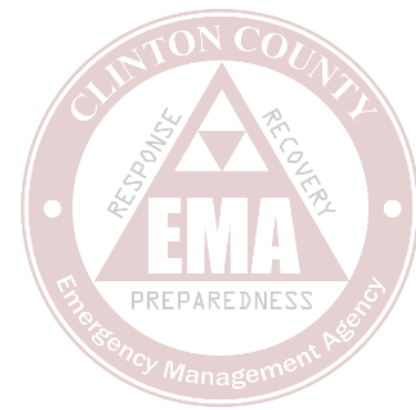
Preparedness is like an insurance policy you take out on yourself and your household. The coverage and deductible are entirely up to you. Every decision you make about preparedness is an investment in your ability to navigate crises.

Applying the Insurance Mindset to Every Lesson

- Each class topic is **another layer of protection** to add to your policy.
- Consider what **level of preparedness fits your needs** and lifestyle.
- **Reassess your preparedness policy regularly** as circumstances change.



Preparedness: Your Personal Insurance Policy



Budget-Conscious Preparedness Approach

- Start by identifying **existing items around your home** that can fill preparedness needs.
- **Repurpose and reuse** older gear before purchasing new equipment.
- Gradually acquire additional supplies and capabilities **as your budget allows**.
- **Focus** on high-priority, cost-effective solutions first, then expand over time.
- Preparedness doesn't have to be expensive—**small, consistent improvements** lead to long-term resilience.



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Overview

This course is designed to equip county residents with the knowledge and tools necessary **to establish reliable emergency communication strategies**. Participants will learn the strengths and weaknesses of various communication methods, licensing requirements, emergency usability, and how to integrate each option into a household emergency plan.

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Cellular Communications

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Emergency Management Agency



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Cellular Communications

Cellular Communications (Pro & Cons)

PRO's

- Widely used and familiar
- Supports voice, text, and data
- Emergency alerts and notifications supported
- No special licensing required
- GPS location tracking for 911 calls

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Cellular Communications

Cellular Communications (Pro & Cons)

CON's

- Tower congestion likely in emergencies
- Limited by cell tower infrastructure
- Dependent on power sources at towers and devices
- May be affected by network prioritization (e.g., emergency personnel get priority access)

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Cellular Communications

Licensing & Use Restrictions

- No licensing required for public use.
- First responders may receive priority under Wireless Priority Service (WPS) during major incidents.

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Cellular Communications

Emergency Considerations

- Write down critical phone numbers in case your phone dies.
- Use text messages instead of calls to reduce bandwidth strain and increase message success.
- Have an emergency contact outside your area.
- **Cell towers typically have 8-24 hours of backup power**, with some lasting longer if generator refueling is available.
- Consider satellite-capable smartphones or devices for backup.

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Cellular Communications

Emergency Considerations

- **Expect congestion during disasters**, especially if many people try to call at once.
- Cellular networks prioritize traffic based on load distribution, but expect congestion during disasters. **Most towers are designed to handle 3-5 times their typical daily load**, but peak emergencies can exceed this capacity, leading to slow connections or dropped calls. Emergency responders receive priority, further limiting public access.

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Cellular Communications

Emergency Considerations

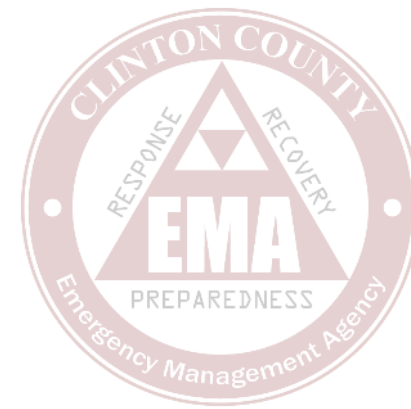
- Priority calls: Cellular providers prioritize network access for **emergency responders** and **government agencies** over resellers and MVNOs (Mobile Virtual Network Operators), which may experience slower speeds or delays during peak congestion. Examples:
 - Mint Mobile, Cricket Wireless, Boost Mobile, Spectrum Cellular, et cetera.

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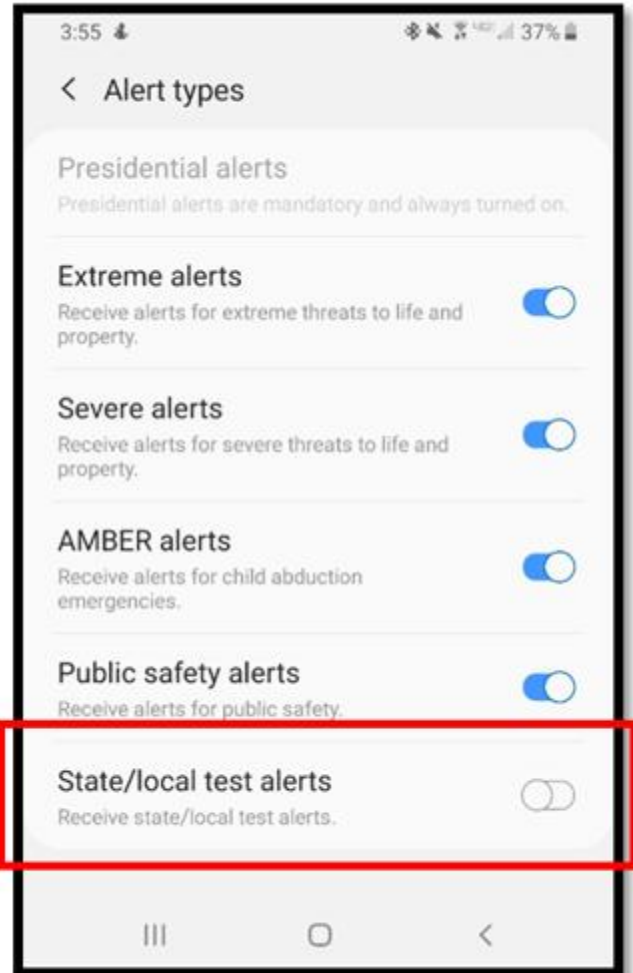
Cellular Communications

Implementation into a Household Plan

- Identify primary contacts and emergency numbers.
- Establish a text-first policy to reduce congestion.
- Use offline mapping apps if navigation is needed during network failures.



How to Receive WEA Alerts on Android & IOS Phones



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Family Radio Service (RFS)

Family Radio Service (Pro's & Con's)

PRO's

- No license required
- Easy to use, commonly available
- Inexpensive
- Good for short-range, local communication

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Family Radio Service (RFS)

Family Radio Service (Pro's & Con's)

CON's

- Limited range (0.5-2 miles) depending on terrain
- No encryption or privacy
- Channels are often shared by multiple users
- Limited by line-of-sight obstructions

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Family Radio
Service (RFS)

Licensing & Use Restrictions

- No licensing required.
- Can be used freely during emergencies.

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Family Radio Service (RFS)

Emergency Considerations

- Susceptible to interference from other users.
- Limited effectiveness in urban or mountainous areas.

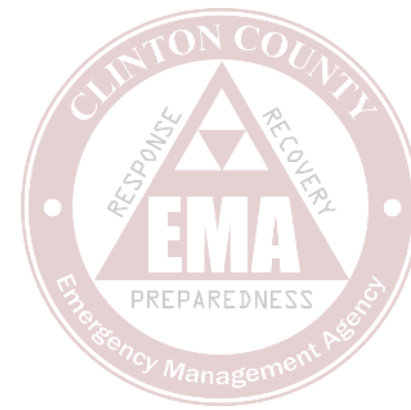
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Family Radio Service (RFS)

Implementation into a Household Plan

- Assign specific channels for family use.
- Have a backup set of fresh batteries or rechargeable power banks.

Examples of FRS radios



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General Mobile Radio Service (GMRS)

General Mobile Radio Service (PRO's & CON's)

PRO's

- Longer range than FRS (5-50 miles with repeater use)
- Can Communicate with FRS radios
- More private than FRS

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General Mobile Radio Service (GMRS)

General Mobile Radio Service (GMRS)

CONS's

- Requires FCC license (\$35 for 10 years, no exam)
- Limited encryption or security
- Some programming may be required for repeater use

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General Mobile Radio Service (GMRS)

Licensing & Use Restrictions

- FCC license required (one per family, no test required)

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General Mobile Radio Service (GMRS)

Emergency Considerations

- Relies on repeaters for extended range, which may fail in a power outage.
- Handheld units can be paired with vehicle or home base stations for increased reliability.

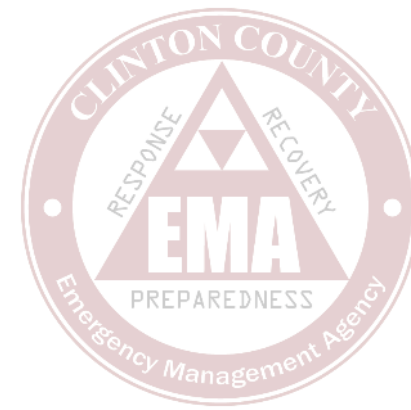
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General Mobile Radio Service (GMRS)

Implementation into a Household Plan

- Pre-program channels and repeaters for easy access.
- Establish a check-in schedule for emergency communication.

Examples of GMRS radios



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Ham Radio (Amateur Radio)

Ham Radio (PRO's & CON's)

PRO's

- Global communication potential
- Works without infrastructure
- Can communicate with emergency responders
- High reliability

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Ham Radio (Amateur Radio)

Ham Radio (PRO's & CON's)

CON's

- FCC license required (exam-based)
- Equipment and training required
- More complex setup

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Ham Radio (Amateur Radio)

Licensing & Use Restrictions

- FCC license required (Technician, General, Extra levels).
- Certain bands have emergency priority.

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Ham Radio (Amateur Radio)

Emergency Considerations

- Best long-range communication for disasters.
- Works without cell towers or internet.
- Requires operator training.

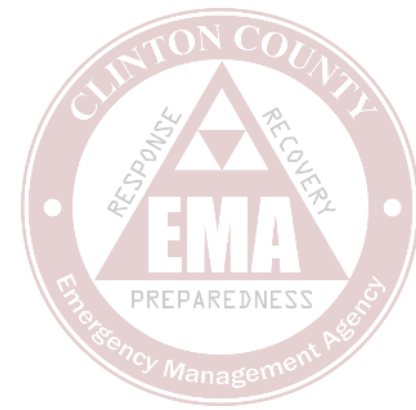
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Ham Radio (Amateur Radio)

Implementation into a Household Plan

- Have at least one licensed operator in the family.
- Program emergency frequencies in advance.

Examples of Ham radios



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Secure Messaging Apps

Secure Messaging Apps (PRO's & CON's)

PRO's

- End-to-end encryption for privacy
- Can work over Wi-Fi when cellular is down

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Secure Messaging Apps

Secure Messaging Apps (PRO's & CON's)

CON's

- Requires internet or mobile data
- Not useful if the internet is entirely down

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Secure Messaging Apps

Examples

- Signal, WhatsApp, Telegram (secure chat apps)

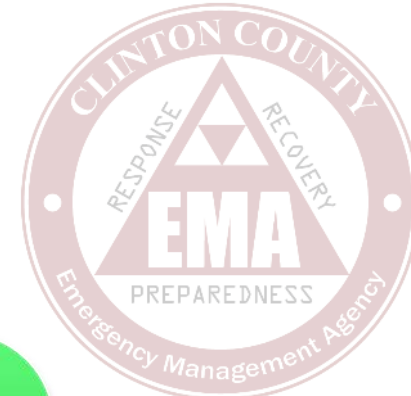
Emergency Considerations

- Works best when internet is functional but cellular networks are overloaded.

Implementation into a Household Plan

- Pre-install secure apps on all family devices.
- Agree on an app to use before a crisis.

Examples of Messaging Apps



Telegram

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Satellite Communications

Satellite Communication (New Tech Options)

PRO's

- Works where cellular does not
- Newer smartphones (e.g., iPhone, Android) support satellite SOS

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Satellite Communications

Satellite Communication (New Tech Options)

CON's

- Requires open sky for best connection
- Slower message delivery

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Satellite Communications

Examples

- Garmin inReach, Apple Emergency SOS via Satellite, Starlink Direct to Cell (T-Mobile), Starlink Roam

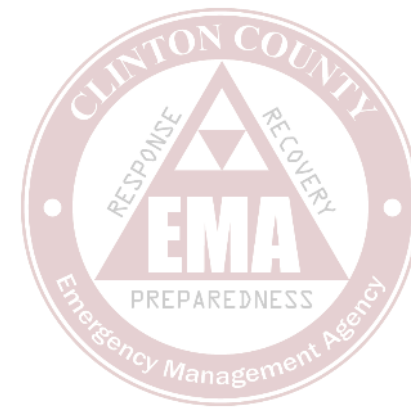
Emergency Considerations

- Provides last-resort messaging when all else fails.

Implementation into a Household Plan

- Consider for areas with unreliable cell service.

Examples of Satellite Communications

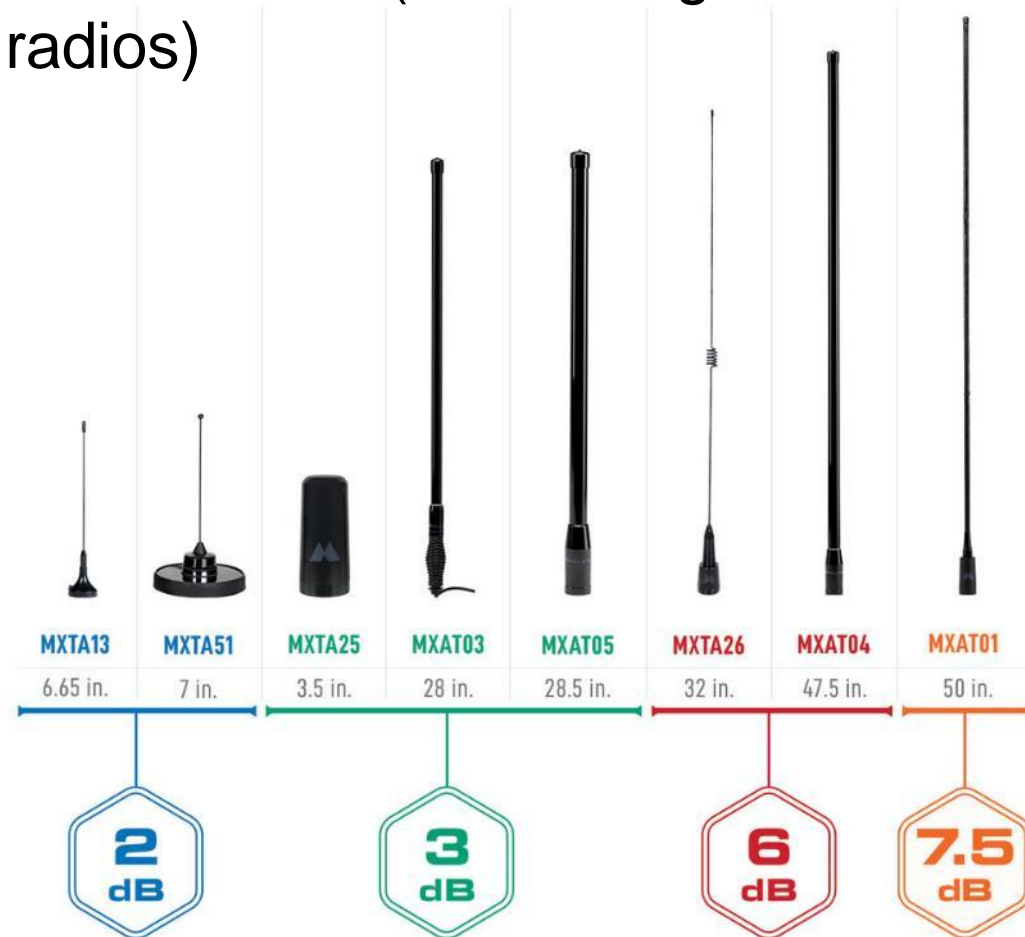


Communications Accessories to Enhance Effectiveness

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Communications Accessories

- External antennas (boost range of GMRS and Ham radios)



Communications Accessories to Enhance Effectiveness

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Communications
Accessories

- Headphones and microphones



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Communications Accessories

Communications Accessories to Enhance Effectiveness

- Solar-powered chargers (keep devices operational)



Communications Accessories to Enhance Effectiveness

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Communications
Accessories

- Backup power stations (Goal Zero, Jackery, etc.)



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Communications Accessories

Communications Accessories to Enhance Effectiveness

- Hand-crank radios (for receiving emergency broadcasts) Headsets (for hands-free operation)



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Final Thoughts

- No single communication method is foolproof.
- Redundancy is key—use multiple communication options.
- Plan for power failures with rechargeable batteries, solar chargers, and generator backups.
- Pre-set contact methods with family and neighbors before emergencies happen.

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Homework

- Choose at least two emergency communication methods.
- Ensure all household members understand how to use them.
- Test systems before an emergency to work out any issues.