

Go Kit Design Considerations and Showcase

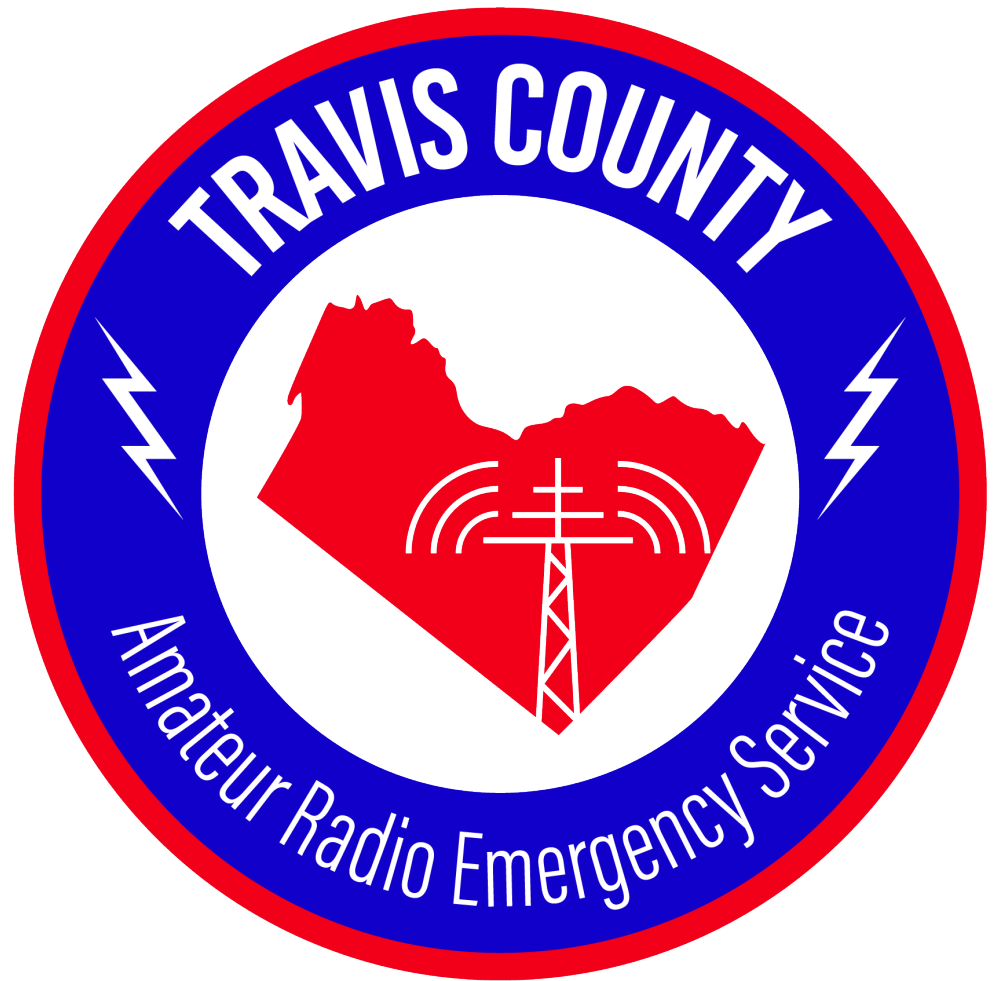
Glenn Meter

W5MTR

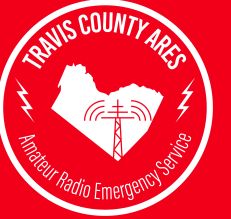
Emergency Coordinator

Travis County ARES

1/28/2025



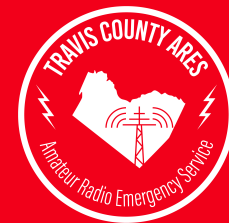
Design Consideratio n SourceS



- Vince VE6LK (Canada)
 - <https://ve6lk.com/learning/go-kit-building-design-considerations/>
- Go kits from
 - John W5RZG
 - ARCHES (Hospital comms)
 - MS-150 operators

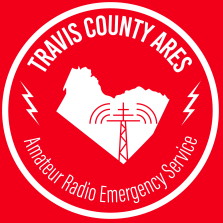
Why

- EMCOMM/AUXCOMM:
 - Shelters (Red Cross)
 - Hospitals (ARCHES)
 - Critical Infrastructure
- Events:
 - Bike rides (MS-150), races
 - Eclipse
- Fun
 - Parks On The Air (POTA)
 - Summits On The Air (SOTA)
 - Camping, RVing



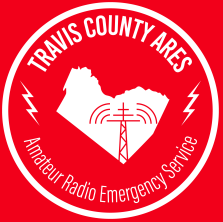
Forms

- Go Bags
 - Backpack
 - Camera
 - Laptop
- Go Boxes:
 - Rackmount
 - Pelican case
 - Ammo can
 - Custom
- Bin of gear



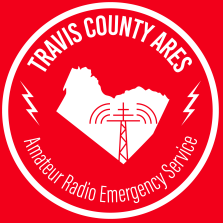
Power

- Grid
- Battery
 - LiPo: lighter, more expensive, can drain deeper
 - AGM (deep cycle): heavier, cheaper, drain to ½ capacity
- Generator
- Solar (Charge batteries)



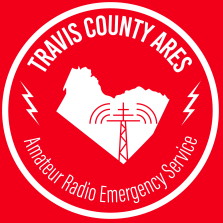
Must Haves

- Radio
- Power distribution
 - Power cable(s)
 - Power bus
- Antenna(s) + antenna supports
- Feedline



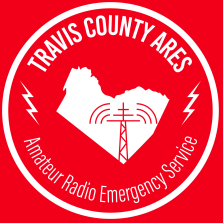
Nice to Haves

- Manuals
- Computer & TNC (if digital desired): low-end ok
 - Laptop
 - Raspberry Pi (+ monitor, keyboard, mouse)
 - USB stick computer (ditto)
 - Mini-computer (ditto)



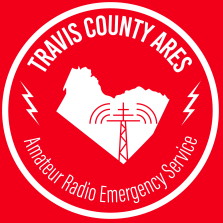
Optional

- Antenna tuner (HF)
- Lights (setup, operating)
- Office supplies
- Printer/scanner
- Surge suppressor (grid power)
- Speakers and/or headphones
- Volt meters, etc. (keep tabs on battery)
- UTC clock
- First aid kit
- Food, drinks
- Tools
- Cart



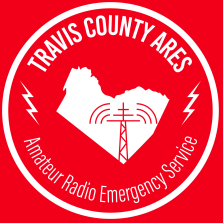
Review Purpose

- Why?
 - EmCom, Events, Fun, etc.
- Where?
 - Inside, outside?
 - Table or summit?
 - Cross-band repeat?
- With whom?
 - Frequencies: HF? V/UHF?
 - Operating modes: CW? Voice? Digital?
 - Which digital modes? Which encodings?

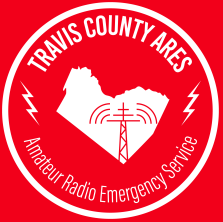


Electrical Requirements

- Source(s) of power?
 - Operating TX power levels?
 - Operating duty cycle?
 - Net Control, WinLink gateway or digipeater, cross-band repeat: higher
 - Field station: lower
 - Computer?
 - Lights?
 - Recharge phones, etc.?
-
- Powerpole connectors are common for inter-operability: swap radios, power, etc.



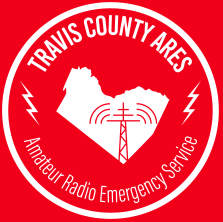
Mechanical & Other Requirements



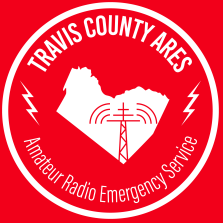
- Size: store & transport
 - Room for maintenance? Reprogram radios, plug in in gear for testing, etc.
 - Rackmount: short or long? (how deep)
- Weight: one-person? Summit or semi?
- Form factor: bag or box(es)?
- Operating environment:
 - How much room is needed to operate?
 - Noise? (Shelter, conference room, roads, etc.)

Resources

- Calculating power requirements:
 - Manuals
 - Kill-a-watt (grid power)
 - Powerwerx Watt Meter (Powerpole)
- Cases:
 - Gator cases: Sweetwater, B&H, etc.
- Panel mount gear:
 - Powerwerx
 - AutoZone
 - West Marine
- DC Power:
 - West Mountain Radio
- Mini computer (DC powered)
 - Beelink
- Cables, components, maker stuff:
 - AdaFruit, SparkFun: curated selection
 - DigiKey, Mouser Electronics: huge selection



Showcase



- Purpose
 - What?
 - Where?
 - With whom?
- Pros
 - Does it suit the planned needs?
- Cons
 - What would you do differently for v2?

