DexNet

Communications Plan v2



DexNet Purpose

DexNet is a simple, fill-in communications plan for your family, close friends or neighborhood for when normal communications fail — a power outage, a cell/internet outage, or a longer grid-down event. It covers which radios to use, who uses them, when to listen, how to run a short check-in net, and how to pass a message. Fill in the blanks, practice it, and keep a printed copy with your radio.

How to use: fill in every blank (pencil works on laminate with a grease pencil), agree on your PACE plan (page “PACE Plan”), practice on your net schedule, and review the plan at least once a year. Items marked **[VERIFY]** must be filled in or checked by your group for your own area.

Who Can Transmit Where

Service	License	Who may talk	Must ID?
FRS	None	Anyone	No
GMRS	FCC license, $35, 10 yrs, no exam	Licensee + immediate family	Call sign at end & every 15 min
Amateur (ham)	FCC exam (Technician or higher)	Licensed operators only*	Call sign at end & every 10 min
Meshtastic (Part 15)	None	Anyone	No (yes if set to licensed/ham mode)

* An unlicensed person may speak over a ham station only with a licensed control operator present at the controls (FCC §97.115). Encrypted or coded messages are not allowed on ham or GMRS. In a real emergency involving immediate safety of life or property, when normal communications are unavailable, a ham station may use any means at its disposal (§97.403). For unlicensed family members, FRS (or GMRS under your family license) is the right tool.

FRS (Blister Pack)

FRS radios are the “blister pack” radios sold at most big-box stores, usually in pairs. No license is needed. Range is limited and best for a small neighborhood. FRS has 22 channels, all shared with GMRS, set by the FCC. Power is limited to 2 watts on channels 1–7 and 15–22 and only 0.5 watt on channels 8–14. FRS radios cannot use repeaters. The “privacy code” (CTCSS/DCS tone) does not make your talk private — it only mutes other users. When mixing brands, start with tones OFF, or confirm every radio uses the same tone number AND the same actual tone frequency (brands number them differently).

For best range use channels 1–7 or 15–22 (2 W); avoid 8–14 (0.5 W). Channels 15–22 are also used by GMRS users running up to 50 W and by GMRS repeaters, so they can be busier. Pick a channel you have tested between all of your radios and write it below, plus a backup.

FRS Channel _____

FRS Backup Channel _____

Privacy Code/Tone _____

(NOTE: All FRS/GMRS channels, frequencies and allowed power can be found in Appendix A at the end of the comms plan.)

GMRS (License Req.)

GMRS radios come as handhelds, mobiles and base stations and allow more power, so the FCC requires a license: no exam, $35, valid 10 years, and it covers your immediate family members. The FCC issues you a call sign that must be said at the end of a conversation and at least every 15 minutes. Handhelds are typically 5 watts or less; mobiles and base stations may run up to 50 watts on channels 15–22 and the 8 repeater channels (channels 1–7 are limited to 5 W, 8–14 to 0.5 W). Expect a mile or two handheld-to-handheld; advertised ranges assume ideal, line-of-sight conditions. A base antenna up high or a repeater goes much farther.

For best range use channels 15–22 at higher power. Pick a channel that you have tested between your radios and write it below. If you will use a local GMRS repeater, record its channel and input tone, and get permission from the repeater owner first. Many GMRS users treat channel 20 (462.675 MHz) with a 141.3 Hz tone as an informal travel/emergency channel — a community custom, not an FCC rule.

GMRS Call Sign _____

GMRS Channel _____

GMRS Repeater _____

Repeater Tone (in/out) _____

(NOTE: All FRS/GMRS channels, frequencies and power limits are in Appendix A at the end of the comms plan.)

Amateur/HAM Radio (License Req.)

Ham radios are sold by radio dealers and online. Everyone who transmits must hold an FCC amateur license, earned by passing a multiple-choice exam given by Volunteer Examiners (plus the FCC's $35 application fee). There are three license classes: Technician, General and Amateur Extra. The entry-level Technician license gives full privileges on VHF/UHF, including 2 meters (144–148 MHz), 1.25 meters (222–225 MHz) and 70 cm (420–450 MHz); General adds most HF bands for long-distance work. Base stations with outdoor antennas reach much farther than handhelds, and local repeaters extend range further. Repeaters are shared — others will be listening and using them.

Pick a simplex frequency from the FM simplex segments of the ARRL band plan — on 2 m: 146.40–146.58 or 147.42–147.57 MHz — and never a repeater input or output. 146.520 MHz (2 m) and 446.000 MHz (70 cm) are national simplex calling frequencies: use them to find each other, then move (QSY) to your group frequency. Listen on your choices for a few days to make sure they are quiet, and check your local/state band plan. Always give your call sign at the end of a contact and at least every 10 minutes, and do not use encryption or codes. Record your frequency and any CTCSS (PL) tone below.

UHF/VHF Frequency _____

PL Tone _____

Local Repeater _____

Rptr Offset / PL _____

PACE Plan

PACE lists your communication methods in order: Primary, Alternate, Contingency, Emergency. If you cannot reach your group on one method within the agreed time, move to the next. Example only — replace with what your group actually has.

	Method	**Channel / Freq.**	**Tone**
P	e.g. GMRS/FRS simplex		
A	e.g. 2 m ham simplex		
C	e.g. local repeater		
E	e.g. Meshtastic / runner to rally point		

Switch after (min) _____

Rally Point 1 _____

Rally Point 2 _____

Frequency Reference

Use	Frequency	Notes
2 m national simplex calling	146.520 MHz	Ham. Call, then QSY.
2 m FM simplex	146.40–146.58, 147.42–147.57	Ham. ARRL band plan.
70 cm national simplex	446.000 MHz	Ham. Call, then QSY.
1.25 m FM simplex	223.40–223.52	Ham. ARRL band plan.
GMRS ch 20 (informal)	462.675 MHz, 141.3 Hz	Custom, not FCC rule.
NOAA Weather Radio	162.400–162.550	Receive only. Local ch: **[VERIFY]**
Meshtastic US	902–928 MHz ISM	Region US. Use group channel.
SKYWARN / ARES net	**[VERIFY]**	Listen for local info.

Group Roster

Use short tactical calls (e.g. “Home Base”, “Truck 1”) on the air; licensed stations still give their FCC call sign every 10 minutes (ham) or 15 minutes (GMRS). Keep phone numbers and addresses OFF any copy you post or share publicly.

Name	Tactical	Call Sign	Radio

DexNet Activation:

Activate DexNet whenever normal communications fail — cell service, landline phones, internet or grid power — or when any member calls for it. To save battery during an outage, turn your radio on at the top of every hour and listen for 5 to 10 minutes on your Primary (PACE). If nothing is heard, call once, then turn the radio off and try again next hour. Keep radios charged and spare batteries ready at all times.

Listening hours _____

If you have heard nothing after the agreed time, move to the next PACE method. If all methods fail, go to Rally Point 1 at the agreed time.

Test DexNet at least once a month with your group (more often is better), e.g. every Friday at 9 PM or the first Monday of the month. A test is a simple check-in proving each radio works — handhelds on battery, base stations on backup power if you have it. Use the time to discuss the plan and try new things. Repetition is what makes the plan work when it counts. Rotate who acts as net control each session so everyone can run the net.

Record your practice schedule below. Example: every Friday at 9 PM → Day: Friday, Time: 9 PM, Repeats: Weekly.

Day	Time	Repeats

Running the Net

Net Script

- OPEN: “This is [call sign], net control for DexNet. This net meets [day/time] on [frequency]. This is a directed net — call net control only. Is there any emergency or priority traffic? …” (pause)
- CHECK-INS: “Stations wishing to check in, call now.” Acknowledge each station by name/tactical call. Log them (see Net Log).
- TRAFFIC: Handle Emergency first, then Priority, Welfare, Routine. Long exchanges move to another frequency.
- RECHECK: “Any late or missed check-ins? Any further traffic?”
- CLOSE: “This net is closed at [time]. Next net [day/time]. [call sign] clear.”

Net control gives their call sign at least every 10 minutes (ham) or 15 minutes (GMRS) and at the close.

Check-In Format

“[Call sign or tactical], [name], [location], [status], [traffic or no traffic].”

Example: “Home Base, Dex, at the house, all OK, no traffic.”

Status: OK • NEED HELP (say what) • EMERGENCY (life/safety).

Traffic Precedence

Precedence	Use for
EMERGENCY	Immediate threat to life or major property. Goes first.
PRIORITY	Important and time-sensitive, but no life at risk.
WELFARE	Health and well-being of family/friends (“we are OK”).
ROUTINE	Everything else. Can wait.

These match ARRL Radiogram precedences, so DexNet messages can be handed to ARES/NTS operators without re-wording.

Message Form

Write it down before you send it. Read it slowly; spell names and addresses with the phonetic alphabet. Based on the FEMA ICS-213 General Message.

Precedence _____

To _____

From _____

Date/Time _____

Subject _____

Message _____

_____

_____

Reply _____

Working with ARES or a served agency? Use their forms: ICS-213 (message), ICS-205 (radio plan), ICS-309 (comms log), or the ARRL Radiogram.

Net Log

A simple ICS-309-style log: who checked in and what was passed.

Time	Station	Status / Message

Meshtastic:

Meshtastic is free, open-source firmware that sends short text messages over low-cost LoRa radios. In the US it runs in the 902–928 MHz ISM band (set the region to "US") under FCC Part 15, so no license is required. Messages hop from node to node (a mesh), so each extra node — especially a solar/battery node mounted up high in a weatherproof box — extends the whole network. Range depends heavily on antenna height and terrain. Many build guides and videos are available online.

Channels can be encrypted with a shared key. The default primary channel uses a publicly known key, so it is NOT private — create your own group channel and share its key in person. If a node is set to licensed (ham) mode, encryption is turned off and your call sign is required. Some devices have GPS and can share position, and Meshtastic can work with ATAK through a plugin.

Channel Name _____

Modem Preset _____

As with every method, practice. Record your Meshtastic test schedule below (Day, Time, Repeats).

Day	Time	Repeats

DexNet Helpful Tips:

Radio Talk:

Common radio prowords and what they mean.

Short Hand	Meaning	Short Hand	Meaning
Roger	“I received your last transmission.” Does not mean yes.	Out	Conversation finished, no reply expected. Never say “over and out.”
Roger So Far	Confirming part way through a long message that you’ve understood	Radio Check	What’s my signal strength? Can you hear me?
Affirmative	Yes	Read You Loud And Clear	Your signal is strong and clear
Negative	No	Wilco	Abbreviation of “I will comply”
Come In	Asking another party to acknowledge they can hear you	Break, Break	Interrupts for urgent/priority traffic. Everyone else stand by.

Go Ahead	I am ready for your message	Emergency, Emergency, Emergency	Life-threatening emergency. Follow with call sign, location, problem.
Say Again	Repeat all of your last message	Stand By	Wait for a short period and I will get back to you
Say Again All Before / All After	Repeat everything before/after a given word	Wait Out	I must pause longer than a short wait; I will call you back
Over	I am finished and expect your reply.	I Spell	The next word will be spelled out using the phonetic alphabet.

Phonetic Alphabet

Letter	Word	Letter	Word
A	Alfa	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliett	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu
0-4	Zero, One, Two, Three, Four	5-9	Five, Six, Seven, Eight, Niner

ITU / NATO alphabet. Say numbers digit by digit (“one four six five two zero”).

Ham Radio Short Talk:

Ham operators use their own shorthand, including “Q” codes borrowed from Morse code.

Term	Meaning	Term	Meaning
73	Best regards	Homebrew	Home Made
Boat Anchor	Old Radio	Jump Off	Leave the Radio
HT	Handheld Transceiver	Kerchunk	Key up with no ID — avoid
PTT	Push-To-Talk button	Key Up	Transmit
QRM	Interference	Mobile	In a vehicle
QSL	Acknowledge / Confirm	Net	On-Air Gathering
QSO	Contact	Picket Fence	Fluttering Transmission
QSY	Change frequency	Ragchew	Long Discussion
QTH	Location	Relay	Pass A Message
Clear	Signing off	Roger	Received (not “yes”)

Copy	Understood	Rubber Duck	Stock flexible HT antenna
Double/ Step On	Talk Simultaneously	Shack	Radio Room
Elmer	Mentor	Silent Key	Passed Away
Final	Last transmission	Stand By	Wait
Full Quieting	Strong signal, no noise	Unkey	Stop Transmitting

Power & Go-Kit Checklist

☐ Radio(s) fully charged; charge after every net

☐ Spare battery packs, charged, plus AA battery shell if your HT has one

☐ 12 V source (car adapter, battery box, power station) and cables

☐ Solar panel/charge controller if planning for a long outage

☐ Spare/better antenna (e.g. roll-up J-pole) and coax adapters

☐ Earpiece/headset; programming cable; printed channel list

☐ This plan, pencil/grease pencil, notepad, message forms

☐ Flashlight/headlamp, NOAA weather radio, paper maps

☐ Test the whole kit on battery at least every 3 months

Tip: program every radio with the same channel names/order so anyone can pick one up and use it.

Outside Resources

Know who else is on the air in your area. Fill these in from your local club, ARES group and county emergency management. Licensed hams can volunteer with ARES (ARRL Amateur Radio Emergency Service), RACES (government-run emergency radio) or as a SKYWARN storm spotter for the National Weather Service.

Local ARES / EC _____

ARES/County Net _____

SKYWARN Net _____

Club Repeater _____

NOAA Wx Freq. _____

County EMA _____

[VERIFY] All of the above are local — confirm with the owning club/agency before relying on them.

APPENDIX A:

FREQUENCY/CHANNEL CHART
FRS/GMRS Transceivers in the United States
As of September 28, 2017

Channel	Frequency MHz	Radio Service	Max Permitted Power FRS	Max Permitted Power GMRS	Detachable Antenna OK? FRS	Detachable Antenna OK? GMRS
1	462.5625	FRS or GMRS	2 watts	5 watts	no	yes
2	462.5875	FRS or GMRS	2 watts	5 watts	no	yes
3	462.6125	FRS or GMRS	2 watts	5 watts	no	yes
4	462.6375	FRS or GMRS	2 watts	5 watts	no	yes
5	462.6625	FRS or GMRS	2 watts	5 watts	no	yes
6	462.6875	FRS or GMRS	2 watts	5 watts	no	yes
7	462.7125	FRS or GMRS	2 watts	5 watts	no	yes
8	467.5625	FRS or GMRS	.5 watts	.5 watts	no	no
9	467.5875	FRS or GMRS	.5 watts	.5 watts	no	no
10	467.6125	FRS or GMRS	.5 watts	.5 watts	no	no
11	467.6375	FRS or GMRS	.5 watts	.5 watts	no	no
12	467.6625	FRS or GMRS	.5 watts	.5 watts	no	no
13	467.6875	FRS or GMRS	.5 watts	.5 watts	no	no
14	467.7125	FRS or GMRS	.5 watts	.5 watts	no	no
15	462.5500	FRS or GMRS	2 watts	50 watts	no	yes
16	462.5750	FRS or GMRS	2 watts	50 watts	no	yes
17	462.6000	FRS or GMRS	2 watts	50 watts	no	yes
18	462.6250	FRS or GMRS	2 watts	50 watts	no	yes
19	462.6500	FRS or GMRS	2 watts	50 watts	no	yes
20	462.6750	FRS or GMRS	2 watts	50 watts	no	yes
21	462.7000	FRS or GMRS	2 watts	50 watts	no	yes
22	462.7250	FRS or GMRS	2 watts	50 watts	no	yes
15RP*	467.5500	GMRS	Prohibited	50 watts	Not Applicable	yes
16RP*	467.5750	GMRS	Prohibited	50 watts	Not Applicable	yes
17RP*	467.6000	GMRS	Prohibited	50 watts	Not Applicable	yes
18RP*	467.6250	GMRS	Prohibited	50 watts	Not Applicable	yes
19RP*	467.6500	GMRS	Prohibited	50 watts	Not Applicable	yes
20RP*	467.6750	GMRS	Prohibited	50 watts	Not Applicable	yes
21RP*	467.7000	GMRS	Prohibited	50 watts	Not Applicable	yes
22RP*	467.7250	GMRS	Prohibited	50 watts	Not Applicable	yes

*Midland MicroMobile repeater channel designations

Chart dated 2017 is still current (FCC §95.567 FRS, §95.1767 GMRS). FRS limits are ERP. “RP” (repeater input) channel numbers are Midland’s; other brands label them differently. GMRS repeaters listen on 467 MHz and transmit on the matching 462 MHz channel (15–22).

Revision History

Version	Date	Changes
1.0	Apr 2024	First release (published PDF).
1.1	May 2024 **[VERIFY]**	Added Meshtastic section (Word file only).
2.0	Nov 2026	Corrected license and power facts; added legal quick reference, PACE plan, frequency reference, roster, net script, check-in format, precedence, message form, net log, phonetic alphabet, go-kit checklist, outside resources.

Review this plan at least once a year and after every activation.

Reviewed by: _____ Date: _____