I have been working on my communications plan. During this process I did a lot of searching for information. Throughout this thread I will upload a good deal of information. What prompted this was because a while back I was able to test my Family Radio Service (FRS)/General Mobile Radio Service (GMRS) radios for distance away from my house. I was disappointed. I did not get as far as I wanted. We are relatively flat but very wooded in this area. My house sits in the woods away from the road. So I am guessing trees cut the distance.

The house I moved from last year sat in the open on an elevation. I don't want to call it a hill compared to military standards but basically a smaller hill. The surrounding terrain was open to semi woods to woods and the terrain was rolling. My reception was almost good with the rolling terrain as I drove down the road at my current location.

If you don't know with GMRS you are supposed to have a license from the FCC but the majority of society does not deal with it. I am part of that majority. The license does cover you and your family. GMRS is great for around the retreat or homestead but probably will not cut it for patrols depending on your terrain.

FRS runs at 2 watts of power and GMRS runs at 5 watts of power but note you can buy GMRS only radios that have much higher wattage. Midland MXT 400 GMRS radio is the highest that I have seen so far at 40 watts.

I don't want to deal with Ham. While amateur radio is for some, it's not for me. I don't want to have to be required to have a license and get on another government list. I don't want to pay fees and the equipment generally costs more. Plus the fact that I don't really care about talking to someone that I do not know across the country or around the world. Eventually I do plan on getting a radio, something inexpensive. Basically I want it for emergency information and monitoring purposes.

Besides all that beautiful range with a Ham radio will end with an EMP/Solar Flare taking out the repeaters. Really it will not just be repeaters taking a hit but almost all electronics being took out with an EMP. If you do not have extra radios in a Faraday cage you will loose all comms. I say extra radios because who will get their electronics out every time they need to use it and then put it back?

People talk about triangulation and finding out where you live because of radio traffic. Try that in a SHTF turn WROL. One, if you have the gas to drive around you just made your self a target. Two if you are trying that in my area and you are not a neighbor or local your F'd. Our hasty road block will inspect your vehicle, credentials and if you are not local you just lost your vehicle, equipment and you are now a prisoner or taking a dirt nap. Now with saying all that you have to maintain proper communication protocols.

This paragraph is what COMSEC is all about. Keep your mouth shut on the radio unless its important. When you do talk make it very short and to the point. Use codes, a key phrase that means something or anything cryptic. A military style Brevity Matrix and CB 10 codes are a good example of that. You can create anything that you want that would help your group. Plus you will want to make it hard for anyone listening to understand your communication. Remember to do what the military does and change their information and codes every 24 hours. We civilians do not have the military luxury of having radios that have cryptographic security. In other words we do not have radios that do the security for us. As close we can get to secure radios is using sub channels on the GMRS/FRS. Garmin Rino radios have a scramble option. Using codes and a Brevity Matrix is a kicker. A self made non standard cryptic code that is random and is changed every 24 hours will be a real pain to decipher.

So you need to take a look around and evaluate what your communication plan needs. What do you want your radios for, options? The distance you plan on communicating at? Your budget? For me the budget is always the deciding factor. Very seldom do I buy premium or at least in the beginning I will almost always buy budget till I get my feet wet. Even then when I do buy premium equipment I will probably buy it used unless I need to have the warranty.

I have decided to go with CB radios along with the GMRS/FRS radios. Its a happy medium between Ham and GMRS/FRS. CB radios have 40 channels in the 27 Mhz 11 meter band.
https://en.wikipedia.org/wiki/Citizens_band_radio
I have been slowly acquiring the equipment from eBay, Craigslist and an auction that I used to frequent. After a couple of cheap purchases that were duds from the auction(online but you go and pick it up) I got the stuff to test so I wasn't wasting my money even if it was 5 or 7 dollars.

So in the beginning get your most needed equipment to test future radios. This is what I did for CB radios. You want a power cord. A known working hand mike/microphone, antenna and a SWR meter. Note: YOU ALWAYS NEED TO HAVE AN ANTENNA CONNECTED TO THE CB BEFORE YOU KEY THE MIKE, IT WILL BURN OUT YOUR RADIO. An SWR meter with a power meter function is ideal and not much more $. You hook the antenna wire to the SWR meter and then a jumper cable from the SWR meter to the CB radio. You then follow directions and adjust your antenna until you reach an allowable range. I would try to describe SWR (Standing Wave Ratio) but wiki does a good job. https://en.wikipedia.org/wiki/Standing_wave_ratio

The power cord for the CB is different depending on manufacturers. The 3 pin connector power cord is common. On the back of the CB there is a 3 pin power connection and the cable has a matching connector and then a male cigarette lighter connector on the other end of the wire.

Some CB radios have a built in power cord. It will have a cut off end so that you can hard wire into the vehicle or a cigarette lighter end connector. I made a cable with the male cigarette lighter end and then on the other end I installed rubber covered alligator clips. Now when I want to test a radio with bare cut off wires I can now clip onto the wires and then plug it in. A quick simple temporary fix.

Something that I did is add an inline fuse to the positive on the power cords with a 2amp fuse. Just CYA. Fuses like to pop. I had one wiring harness blow the fuse in the cigarette lighter male end and no store carried the fuse. It is one of those older style long tube fuses. Now the stores have several lengths and diameters. That's when I said screw it and bought the popular inline fuse assembly with the common flat fuses. For the blown fuse I put aluminum foil around it and reassembled it so that the circuit would be complete. Note: ALWAYS HAVE A FUSE IN YOUR POWER CORD! If you do the aluminum foil trick and if you do not have a fuse you will fry your radio.

Now with a power cord, hand mike, antenna and preferably a Power/SWR meter you can check out and test your possible used radio purchase before you lay down the cash. If you are doing a Craigslist ad then let the buyer know ahead of time you want to test the equipment. If they are not willing to let you test then move on. If you are buying on eBay then look for a return policy. If there is no returns allowed then look for a statement of “tested”, “works great”, or other similar statement. You are looking for a way to guarantee its in working condition so that eBay/Pay Pal will protect you from a Dead on Arrival situation and you can get your money back. If there is a statement of “No Returns AS IS Where Is” then steer clear of these listings unless you are looking for parts.

I chose to have a couple different radios. Using different channels like the local auction, Craigslist and eBay I got a few different radios at a steep discount. They are normal radios with the exception of two. They have the option that is good to have which is the National Weather Service and a scanning mode. That way if it is WROL and you have a team in the field conducting a patrol you or they can scan for any radio traffic and if the weather service is still operating then you can get weather updates. I have hand held CB's also and one option that I wish I have is a headphone plug. Without having head phones you are broadcasting to the forest your radio traffic. In the woods noise travels.

Note, antennas are different shapes sizes and performance. You have vehicle antennas that are “Ground Plane” because of the large metal surface. You have “No Ground Plane” for vehicles and houses that have very little metal like motor homes, boats, cars made out of fiberglass(vettes). You have different antenna types or styles. Most common is the vertical antenna and the horizontal called a dipole. I am using these two styles. There are several other styles that I am not familiar with. The vertical has 360 degree coverage The dipole is straight forward and backwards, no left or right coverage. This type of antenna transmits a very long ways away using skip. There are other antenna styles. I will upload several books on antennas.

A quick note about CB radios. They operate on the AM band. There is another type of CB called Single Side Band (SSB).
https://en.wikipedia.org/wiki/Single-sideband_modulation

SSB is still AM and still uses the same frequencies but it has an option of turning on the SSB and then it operates at a higher wattage which in turn allows you to transmit further. From my understanding if you are on a normal CB and you try to listen to a SSB transmission it is garbled. When the oportunity arises I do plan on getting a SSB radio for my communications center.

I want to make a quick mention of towers such as residential TV or radio towers. I bought my 40' tower for $50.00 at an auction. Some wheres down the line the previous owners had a tower near my house. The cement pad and steel mounts sticking out of the cement are the only thing left. I am going to figure out a way to create a mount to align up with the cemented mount so I can erect my tower. With a tower you get height and the higher an antenna is the further distance you gain.

Here are some basic options that you can buy for your system.

SO-239 female to female coupler adapter for PL-259 connector. This is for joining antenna wire sections together to make a longer wire.

This adapter is the male PL-259 to SO-239 female right angle connector. This is basically for mounting your antenna on the back of the CB at a right angle.

SO-239 female 4 holes Square Panel TO SO-239 PL259 RF connector adapter. This is for when you have to bring an antenna into vehicle, house or some other hard structure or container.

Here is a SO-239 female to BNC Male antenna adapter. What I used this adapter for is to replace the rubber ducky antenna on a handheld CB radio while in the field. The rubber ducky antenna sucks. It is a close range antenna period. It does not matter if it is a base station CB, mobile CB (car) or a handheld CB. All CB's are regulated at 4 watts transmitting power. This adapter allows you to hook up the antenna wire and no ground plane antenna for long range transmission. You will probably have to attach the antenna to a very long stick or throw a rope over a high tree branch and lift the antenna up. The higher the antenna is the better transmitting and receiving.

Here is pretty handy adapter a PL-259 to SO-239 T splitter. This adapter allows you to hook up two different antennas to your radio. For example I have a verticle intermediat range and a longer dipole. The vertical antenna transmission could be used for your local traffic and with the dipole aimed at your patrol location(s) like South of base camp.

If any of this has been an interest then start your research. This thread wasn't so much to teach you but inform you of options. There are a lot of different sources and one that I did not mention is truck stops. Many larger truck stops have CB shops and can help you out. I had a couple antennas and CB radio eBay stores provided a little time and a lot of information. Remember ask questions, check for a return policy and test your equipment.

Eventually I will be creating a thread on a portable power source that I am building. Almost all of the components have been received from China so the building will come soon. Besides casual use the purpose of this is to be used in the field on a patrol to power the CB radio and recharge the GMRS. Maybe even help neighbors charge any items they need.

The power source will contain a set of cigarette power plug, USB plug and volts meter. I will have an additional USB plug and cigarette plug. Inside will have a 10 fuse block and a grounding bar. A battery kill switch. I will also have a solar charge controller and a volts, watts, amps power meter for overall power monitoring. Right now I have a 12v 15amp deep cycle battery(small sized) but I am thinking of adding another one. Keep in mind weight and size is critical. This power supply will be carried in a rucksack.