



February 2024 Newsletter

Seaway Valley Amateur Radio Club

The Seaway Valley Amateur Radio Club is a 'not for profit' organization incorporated in the Province of Ontario that promotes Amateur Radio and provides Auxiliary communication Services in Cornwall and surrounding area. The Club's mailing address is 4672 O'Keefe Road, St. Andrews West, ON. K0C 2A0.

The Seaway Valley Amateur Radio Club operates several repeaters in Cornwall and the surrounding area. For a detailed list of repeaters operated by the club please visit our website at SVARC.ca

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Next Club Meeting

The next meeting will be a hybrid Zoom / in-person session; 7:00 PM, Wednesday February 28, 2024.

Location: St. John Ambulance, 100 Second St. W., Cornwall, ON.

Guest Speaker – Show & Tell by John Grow (VE2EQL). John will show a collection of his QRP radios.

Club Breakfast (aka Coffee Klatch)

***** LOCATION CHANGE*****

For the month of February, Saturday Breakfasts will be held at the Best Western (Hops and Barley) restaurant at 1515 Vincent Massey Drive, Cornwall on even (2nd and 4th) Saturdays of each month, 8:30 A.M.

Club Executive & Volunteer Positions

- President: John Grow (VE2EQL)
- Vice-President: Hunter Racine (VA3HWF)
- Secretary: Roger Bélanger (VA3GBV)
- Treasurer: Chris Lauzon (VA3CRR)
- Technical Director: Doug Pearson (VE3HTR)
- Net Manager: Earnest Vinson (VA3EWW)
- ACS Coordinator: Earle DePass (VE3IMP)
- Newsletter: Steve Harvey (VE3EZB)



President's Message

John – VE2EQL

January came as quickly as it departed. I'm still learning the ropes and will be for some time. One of the perks of being named President is receiving boxes of files relating to the SVARC and its past history. (More stuff to store) For meetings, I like the business aspect to go smoothly, so we can focus on the presentations and or show & tell.

Our new year also brings about new projects. A potential new place for our Coffee Katch on Saturday mornings, depending on what the membership decides. The Youth Engagement Fair in April, Field Day preparations, Club BBQ and our potential Joint Hamfest. At the last meeting, we were lucky to have VE3EBI Leo present the "**8AAT STEM Cubesat Robotics Camps**".

I wrote an article on the upcoming presentation for the Cornwall Seeker magazine. It was also on their website.

Check out:

<https://theseeker.ca/2024/01/amateur-radio-in-space-unveiling-the-8aat-stem-cubesat-robotics-camps/>

We are talking to HAM Radio presenters who specialize in a variety of Ham Radio topics for our future meetings. Some ideas for topics that we are looking at: Equipment for Portable Emergency Communications, Antennas, Digital Modes, Portable DC Power, POTA (Parks on the Air) SOTA, (Summits on the Air). I would also like to mention that before every meeting, a large group of us meet at Jack Lee's for supper. If you can join us, that would be great. We are open to new ideas, comments, or flame throwers. And a shout out to our Event Coordinator, Jason Racine who is moving our projects.

Potential Joint Hamfest between Prescott-Russell Amateur Radio Club & Seaway Valley Amateur Radio Club

PRARC / SVARC Ham fest First Meeting February 4th. 2024

Present: Joel Brisson, Gilles Beaulieu, Jason Racine, Hunter Racine, John Grow & Michael Papineau.

Date: September 28th. 2024

Proposed Location: St. Albert Community Center or Rockland

Ham fest Details: Entrance Tickets \$ 10.00

Table Rentals \$ 10.00 per table. Admission for 2 persons

Entrance only, door prize ticket not included.

Door Prize Tickets \$ 10.00 per ticket.

Major Door Prize HF Radio

Secondary Prize VHF / UHF radio

Special raffle 50/50

Table Size 8 ft.

Free Tables: PRARC, SVARC, RAC

Website: <https://prarc.tech/hamfest/>

Website Coordinator: Gilles Beaulieu, VE3NPI

Sponsor Coordinator: Joel Brisson, VA3WBK

Corporate Sponsors to date: Radioddity

Potential Corporate Sponsors: Radio World

ICOM

DX Canada

Premier Communications

Our next scheduled planning meeting is March 3rd in Casselman, Ontario. Location TBD



Steve – VE3EZB

Editor's Ramblings

While it may be “old news” now, I would like to start this month's column by congratulating **Dave Tucker – VA3OPS** who passed his basic exam with honours back on 10 Jan 2024. Congratulations Dave and welcome to the wonderful world of Amateur Radio.

As February packs its bags to leave, I've been on a ride of discovery and innovation—kind of like a rollercoaster but with soldering irons, antennas, Arduinos and 3D printers. And although we didn't get much snow this winter, we've battled the relentless hiss of winter's static as well as a little freezing rain Mother Nature decided to bestow on us; not as bad as years past but still enough to take down a few hastily raised antennas. (not mine, but I know a guy ...) Despite this, I was still able to tinker, transmit and enjoy some learning, and let's admit it, a bit of geeky camaraderie.

[The Digital Frontier: Where No Ham Has Gone Before \(Without a Manual\)](#)

My decision to make a serious attempt to use digital modes of communication, such as FT8, JS8Call, Winlink, C4FM, PSK31, and WSPR (just to name a few of the alphabet soup modes), marks a significant turn in amateur radio for me. I've dabbled in digital of course but for the most part, I've been an SSB/FM guy. I must admit, these modes have changed my mind on what I thought was possible, enabling communications around the world with signals weaker than your grandmother's Wi-Fi. I found a new excitement in ham radio. Portable ops are next. Maybe I'll activate a park or two for POTA.

[Emergency Response: Not All Heroes Wear Capes \(Some Prefer Antennas\)](#)

The annual Winter Field Day in late January was a spectacle of ham “heroism”. Operators from all walks of life braved the elements, setting up their stations in conditions that made even the hardiest of souls reconsider their life choices. Unfortunately, I was unable to participate this year, but I'll be ready next year. Might even go portable.

[Engaging the Next Generation: Ensuring Amateur Radio Doesn't Become a Historical Footnote](#)

The future of amateur radio is bright, and some youths are beginning to look up from their smartphones long enough to notice. Clubs and organizations have been on a mission, promoting amateur radio through educational programs like the 8AAT STEM CubeSat Robotics Camps (because nothing says “cool” like robots and space). More and more high schools are using Amateur Radio to provide hands-on experience and through workshops and contests, we're lighting a spark of interest in STEM, cultivating technical skills, and, hopefully, ensuring the airwaves aren't just filled with the sound of nostalgic static and a few “old guys” taking about their illnesses and ailments.

[The Social Aspect: More Than Just a Bunch of People Talking About Weather](#)

Beyond gadgets and gizmos, amateur radio is a social hobby. It's about building bridges (sometimes literally, to hang antennas), forging friendships that span the globe, and creating a sense of community in a world that sometimes feels too big. In this digital age, the value of genuine connections, made through crackling airwaves, reminds us that technology might change, but the human touch is irreplaceable. The community continues to welcome all comers, proving that diversity is our greatest strength and possibly our best source of new jokes.

[Looking Back, Moving Forward: Keeping the Airwaves Weird](#)

Reflecting on February's adventures, it's clear that amateur radio isn't just keeping up with the times—it's leading the charge, armed with a soldering iron in one hand and a Morse key in the other. It's good to see that amateur radio remains as resilient and captivating as ever, promising a future filled with endless possibilities, connections, and, if we're lucky, a few more good laughs.

Let's keep the airwaves buzzing and the connections strong.

'Til next time – Smile and Cruise.

The Geek's Corner

This month's Geek – Roger – VA3GBV



Roger
VA3GBV

Duplexer 101- Part I

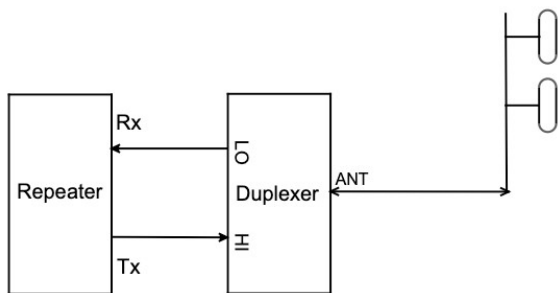


Comprod VHF Duplexer

What is a duplexer?

To best understand what a duplexer is, we could start by asking: "Why is it required for repeater operation".

Here is the basic repeater block diagram:



For simplicity and cost effectiveness it is desirable to use a single antenna for both the transmit and receive functions.

Here is the key: A repeater must be capable of transmitting and receiving simultaneously.

This is the whole purpose of a repeater, to retransmit simultaneously the signal it receives from a station. So, the receiver must be ON while the transmitter is blasting away.

But a receiver is a very sensitive signal detector.

A typical receiver, as used in the Yaesu DR-2X repeater, will be able to detect a signal of 0,2 microvolt with a good readability¹. However, in the real world the Noise floor at the repeater site is not likely to be lower than 1 microvolt.

Conversely a typical repeater transmit power is 50 Watts. 50 Watt is 50 volts into a 50 ohm load.

This means that the transmitter voltage at the input feed line to the antenna is over 50 million times higher than the minimum receive signal (or Noise Floor) coming out of the feed line from the antenna.

We would quickly fry our receiver front end if we were to combine those two signals directly into the antenna feed line without any isolation.

Let's do the math: (I know, I know, a lot of people don't like that part!)

First, we must compare apples with apples. The receiver sensitivity is in volt and the transmitter power is in Watts. Let's convert everything to Watts first,

To convert Volts to Watt we use the following formula:

$$P = \frac{V^2}{R}$$

Where:

P is power in Watts

V is Voltage

R is the impedance of the device in Ohms (50 Ohms in our case)

¹ DR-2X VHF receiver sensitivity is 0,2 μ V for a 12 dB SINAD (Signal to Noise and Distortion)

Then the minimum receive power is

$$P = [(1\mu V)^2] \div 50$$

$$P = 2 \times 10^{-14} \text{ Watts}$$

To make all this simpler we will use the Decibel scale, namely the dBm scale:

Where 0 dBm is equivalent to 1 milliwatt

Receive Power:

$$P_{dBW} = 10 \cdot \log(2 \times 10^{-14}) = -137 \text{ dBW (referenced to 1 watt)}$$

$$P_{dBm} = -137 \text{ dBW} + 30\text{dB} \quad \text{i.e.: } 30\text{dB} = 10 \cdot \log(1000\text{mw/W})$$

$$P_{dBm} = -107 \text{ dBm}$$

Transmit Power:

$$P_{dBW} = 10 \cdot \log(50) = 17 \text{ dBW (referenced to 1 watt)}$$

$$P_{dBm} = 17 \text{ dBW} + 30\text{dB} \quad \text{i.e.: } 30\text{dB} = 10 \cdot \log(1000\text{mw/W})$$

$$P_{dBm} = 47 \text{ dBm}$$

Here are the two signals in presence at the antenna side of the diplexer. (we will ignore the loss of the diplexer for now).

Receiver input power	Transmitter output power
$9.68 \times 10^{-16} \text{ Watts}$	50 Watts
-107 dBm	47 dBm
The difference is 154 dB	

154 dB isolation is not easy to achieve, but then the diplexer does not have to do all the work.

A receiver has its own selectivity to protect the desired signal against an adjacent signal.

For example, a Yeasu DR-2X receiver has a selectivity of 60 dB at 35 KHz. This means that the receiver would reject an adjacent signal 35 KHz away from the desired signal by 60 dB. It would be even more at 600 KHz, (TX Rx separation of VHF repeaters) likely by another 20 dB.

From the table above we can see that we still need to provide between 80 and 90 dB of rejection of the transmit signal in front of the receiver.

That's the first job of the diplexer.

It should be noted that while the main role of the diplexer is to protect the receiver from the transmitter high level signal, it is also need for 2 more jobs:

- Clean-up the transmitter out-of-band emissions
- Protection from the neighbors

Transmitter Out-Of-Band Emissions:

A transmitter, as good and as expensive as it may be, is not perfectly clean. It will also transmit spurious emissions across the spectrum coming from different sources, like residual LO's, noise, sub-harmonics, power supply etc.

Going back to our DR-2X, the transmitter spurious emission specified at -60 dB. This means that we could see spurious component in the receive band at up to:

$$47 \text{ dBm} - 60 \text{ dB, or } -13 \text{ dBm}$$

This is still 94 dB higher than the Noise Floor about 75 dB higher than full quieting receive signal at the output of the antenna feed line.

So, we will also need to provide ~90 dB rejection of the transmitter spurious emission in the receive band at the output of the transmitter.

That's the second job of the diplexer.

Protection from the neighbors

Amateurs and Amateur Radio clubs are seldom rich enough to have their own remote site on mountain tops or on very tall towers. Most of the time, Amateur radio repeaters are riding back-seat to commercial sites who can afford elaborate and expensive facilities. It is certainly the case for the SVARC where we sit side-by-side with commercial and institutional operators at the Community Hospital, on the Bonville site and on the Beaverbrook site.

But this comes at a price. These neighbors also use the spectrum, sometime very close to our frequencies, sometimes close enough to interfere with our frequencies, unless we have proper filtering.

So, our duplexer must protect us from these strong Out-Of-Band signals.

That's the third job of the duplexer.

Now that we know what the jobs are to be done, how do we realize such a device.

Well, stay tuned for Duplexer 101, Part II

73 – Roger – VA3GBV



Upcoming Events

- 24 February – Saturday **The Vermont Ham Radio Convention** - LIVE at the HAMpton Convention Center – ON-LINE at www.HAM-CON.org
- 6 April – Saturday 9:00h **Iroquois Amateur Radio Club Hamfest** – <http://iroquoisarc.ca/page3.html>
- 10 April – Wednesday 16:00-21:00h - **Youth Engagement Fair** details can be found at <https://www.cornwallchamber.com/event/youth-engagement-fair>
The executive will come up with an action plan so we can showcase the SVARC club.
 - 13 April – Saturday 8:00 – 16:00h **Raisin River Canoe Race** South Glengarry
 - 22-23 June – Saturday-Sunday **North American Field Day** – Location TBD
- 28 Sep – Saturday – **TENTATIVE – PRARC / SVARC Ham Fest** <https://prarc.tech/hamfest/>



ACS Report

Earle – VE3IMP

The SD&G RAC Auxiliary Communications Service (ACS) Group [Formerly ARES]

EmComm Monthly Report For Jan. 2024

Seaway Valley Amateur Radio Club (SVARC) Inc.: The SD&G RAC Auxiliary Communications Service (ACS) Group, a subset of the Amateur Radio Emergency Services (ARES), is associated with the SVARC.

This club continues to hold its monthly “hybrid” (in-person and virtual) meetings, featuring interesting Guest Speakers. The SVARC held its most recent “hybrid” meeting on January 31, 2024 at the *St. John Ambulance* Headquarters in Cornwall.

Coffee Klatches where members can socialize with each other are held on the 2nd and 4th Saturdays of each month, starting at 08:30AM. The Club has decided to try the next Coffee Klatch on February 10, 2024 at the *Best Western Parkway Inn* (formerly Spinners), Cornwall.

The SVARC last held a Fox Hunt on November 26, 2023.

Repeater Checks: (Ongoing):

Our 8 repeater systems continue to function very well. The SVARC weekly Net is conducted on each Monday at 7:00PM (Local). The Net first starts on VE3SVC (147.180MHz.+). Checks are then made by switching the Net to the VE3PGC (UHF) repeater where an EchoLink check is performed. A check is also performed on VE3VSW, VA3FHA then DMR. This process confirms the serviceability of nearby *Seaway Valley Amateur Radio Club* (SVARC) repeater systems at least once a week, should they be required by the RAC Auxiliary Communications Service (ACS). On average there are 20 total check-ins. The weekly reporting system has been enhanced to show the names and callsigns as those who check in. This as opposed to just recording the number of weekly check-ins.

Our AECs are:

1. Hal Green (VE3HWG), South Glengarry,
2. Stan Fortune (VA3JSF), South Stormont,
3. Ed Halliwell (VE3EAH), South Stormont,
4. Doug Pearson (VE3HTR), City of Cornwall, and,
5. Richard (Rick) Palmer (VA3EV), City of Cornwall.

City Of Cornwall:

Discussions with Leighton Woods (Deputy Fire Chief, Fire Services for the City of Cornwall) have not continued. While

we had hoped to meet with the City of Cornwall in early 2023 this has not taken place.

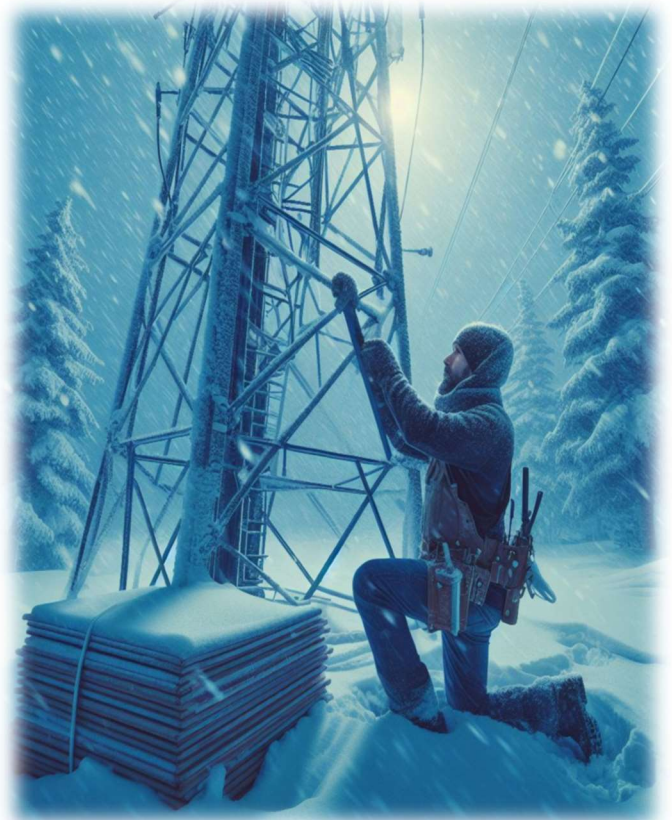
South Glengarry ARES Projects:

The VA3FHA repeater (installed on Aug. 29, 2022) at the Beaver Brook landfill site, continues to function well.

Earle DePass, (VE3IMP)

Group Coordinator (GC), SD&G ARES

RAC Auxiliary Communications Service (ACS) Group.



Survey Time

Spinners or Best Western Pros & Cons

We will be meeting again this Saturday for breakfast at the **Best Western Parkway Inn 1515 Vincent Massey Drive, Cornwall.** (arrival time 8:45 - 9:00 AM)

Coffee Klatch Poll

Spinners Diner 118 Pitt St. Cornwall

Pro's

- Sandra is one of the best waitresses, and very helpful to our members.
- Wide choice of food options.

Con

- Parking.
- Noisy and not so private. Hard to have a group discussion.
-
- Hard to have more than 14 seats, due to the lack of tables and space.

Best Western Parkway Inn 1515 Vincent Massey Drive, Cornwall

Pro's

- Carrie, the waitress is very helpful.
- Lots of Parking.
- Separate Room, which can hold 22 to 25 members comfortably.
- We can reserve the area for the whole year.
- A la carte menu available.
- Free Coffee for those members who are not eating at all.

Con

- Limited choice of buffet menu. (We are talking with them to see what can be done).

GENERAL QUESTION: There have been some comments to propose a later time, so instead of 8:30 AM it will be moved to 9:00 AM.

A vote to decide the venue for our Coffee Klatch will take place at the upcoming monthly meeting on February 28, 2024.



PRARC / SVARC Ham Fest – 28 Sept 24

PRARC / SVARC Ham Fest - First Meeting February 4th. 2024

Present: Joel Brisson, Gilles Beaulieu, Jason Racine, Hunter Racine, John Grow & Michael Papineau.

Date: September 28th. 2024

Proposed Location: St. Albert Community Center
or Rockland

Ham fest Details: Entrance Tickets \$ 10.00
Table Rentals \$ 10.00 per table. Admission for 2
persons

Entrance only, door prize ticket not included.

Door Prize Tickets \$ 10.00 per ticket.

Major Door Prize HF Radio

Secondary Prize VHF / UHF radio

Special raffle 50/50

Table Size 8 ft.

Free Tables: PRARC, SVARC, RAC

Website: <https://prarc.tech/hamfest/>

Website Coordinator: Gilles Beaulieu, VE3NPI

Sponsor Coordinator: Joel Brisson, VA3WBK

Corporate Sponsors to date: Radioddity

Potential Corporate Sponsors:

Radio World

ICOM

DX Canada

Premier Communications

VE3EZB's QRP Portable Station in a box (below). Using the tablet and the QRP radio, emails can be sent using Winlink as well as the current position can be sent to the APRS system also using Winlink. This comes in handy when camping off-grid to notify family and friends of his whereabouts. Of course, SSB, FT8, PSK31, JS8Call, etc. can be utilized as well. VE3EZB also travels with his trusty Yaesu 991A and can use that for QRO operations when required / desired.





Earnest – VA3EWW

Net Manager's Report

SVARC Net Control Operator

We welcome all to take the opportunity to pick up that microphone, press that PTT and be SVARC's Net Control Operator for any upcoming Monday Night Nets.

Being net control is very rewarding and not overly difficult, I do it all the time lol :) and we even have a script (<https://www.svarc.ca/net-script/>) that keeps you focused and on track.

What do you need to run a net?

First off, let's go over the tips, tricks and equipment that you may want to have if you are considering taking a spot in the Monday Night rotation.

1. Hardware, I recommend using a UHF/VHF/220 radio with a good DC power source connected to an external antenna. I say this because the club has 8 repeaters that we exercise during our Monday evening net. If you own a rig (or rigs) that supports DMR, C4FM and 220mHz, then you can work all 8 repeaters.
2. Supplies, have your log, pens or pencils at the ready so you aren't scrambling during the net. We have an excel sheet with almost everyone's call signs already there and room for up to 10 new contacts and I send that out prior to each net but if you prefer pen and paper, I'm good with that.
3. Now that the hardware and supplies are out of the way, take time to review the Net Script (link above) to familiarize yourself with it. Read it out loud a couple times so that you are comfortable with it prior to the net. Doing this really boosted my confidence when I took the plunge so many years (months lol) ago.
4. I also test my ability to "bring up" each repeater 30 minutes prior to the net so that if I experience hardware failure, I can reach out to a backup

operator to jump in and keep the Net going. During your testing, if you discover a repeater isn't functioning correctly or has failed, you may have time to contact our Technical Director (Doug VE3HTR) to advise him of the issue and he may be able to rectify before the net starts. FYI, I'm currently backup for anyone taking the net, meaning that I'm always following along, taking down the call signs and making myself ready in case of any issues.

5. Now ... taking check ins – I like to welcome every operator who checks in by name. With practice you'll learn the names of all the locals that participate. I keep a browser screen open on my computer logged into QRZ (there are other places but that's the one that I use) so I can quickly enter an unfamiliar call and get their name. This isn't necessary but I think it makes for a more friendly net.
6. Finally – every net has a net manager and that's me :) VA3EWW. I have the privilege of coordinating all of the net control operators and make sure everything runs in an orderly fashion. When you are ready to take on a net, send me an email and sign up for a spot on the rotation. I assure you that you will love it.

In closing, VE3IMP - Earle D. invited me to his home to watch him run a net and as a brand new out of the box ham, I was very excited and ready to try it, that said, I welcome anyone to come to the shack when I'm running the net to see the behind-the-scenes action.

I also enjoy listening to the ProCom Net, the TransCanada Net, the Covey Hill Net as well as the Racoon Net.

Thanks for your continued support - VA3EWW - How Bout Ya!!

Show and Tell

Pre-meeting supper, 31 Jan 24 at Jack Lee's Tavern
Restaurant, 128 Pitt St, Cornwall.



Clockwise from left to right – Mrs Champagne (René's wife),
Earle (VE3IMP), Jason (VE3PRY), Hunter (VA3HWF), Michael
(VE3AQE), David (VA3OPS), Brendan (VA2BXJ), Leo
Yoshinaka (Guest Speaker), Doug (VE3HTR) and John (VE2EQL)



QRP Radios to be Demonstrated by John (VE2EQL) at the next monthly
meeting.

Kitbuilt NORCAL 2030 20 CW transceiver <http://norcalqrp.org/nc2030.htm>

"Home brew" 80 meter receiver <https://cool386.com/tda7000/tda7000.html>

usDx USDR SSB transceiver <https://www.eham.net/reviews/view-product?id=15133>

40-meter Rock mite CW transceiver <https://www.qsl.net/n1olo/rockmite.html>

SVARC Calendar

- Saturday, February 24th. **Coffee Klatch – Best Western**
- Wednesday, February 28th. **SVARC Meeting – St. John Ambulance**
- Sunday, March 3rd. **SVARC PRARC Hamfest Planning meeting – Casselman, Ontario**
- Saturday, March 9th. **Coffee Klatch – To be Announced.**
- Saturday, March 23rd. **Coffee Klatch – To be Announced.**
- Wednesday, March 27th. **SVARC Meeting – St. John Ambulance**
- Saturday, April 13th. **Raisin River Canoe Race**
- Wednesday, April 10th. **Youth Engagement Fair – Cornwall Civic Complex - Salons A, B, & C 4:00 PM to 9:00 PM**
- Saturday, April 13th. **Coffee Klatch – To be Announced.**
- Wednesday, April 24th. **SVARC Meeting – St. John Ambulance**
- Saturday, April 27th. **Coffee Klatch – To be Announced.**
- Saturday, May 11th. **Coffee Klatch – To be Announced.**
- Saturday, May 25th. **Coffee Klatch – To be Announced.**
- Wednesday, May 29th. **SVARC Meeting – St. John Ambulance**
- Saturday, June 8th. **Coffee Klatch – To be Announced.**
- Friday, June 21st. **Drop off / Set up of Field Day Equipment – Location TBD**
- Saturday, June 22nd. **Field Day – Location TBD**
- Saturday, June 22nd. **Coffee Klatch – Field Day Location**
- Sunday, June 23rd. **Field Day – Location TBD**
- Wednesday, June 26th. **SVARC Meeting – St. John Ambulance**