



Hanwell Observatory Inc.

22 Falcon Lane
Hanwell, NB E3E 2K8

Proposal for funding under Hanwell's Recreation and Leisure Services for the rural community

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**Submitted by
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Summary

Hanwell Observatory Inc., a non-profit organization founded in 2010, is applying for funding of \$9,385 for the purchase of telescopes and accessories in order to further its Stargazing in the Park observing program for members of the public. The funds will be used to purchase a "finder" attachment for an existing telescope, obtain a new high quality portable computerized "Goto" telescope, a solar telescope equipped with a hydrogen filter and an equatorial mount, a smartphone adapter, and signage at the location of the stargazing events when they happen.

The organization's objectives are to provide free recreational activities to members of the public, to mentor and encourage young people in the study of science and astronomy, and to make Hanwell a destination for astronomical activities.

Details

Description of the organization's activities that benefit the community

In 2006 members of the William Brydone Jack (Fredericton) Astronomy Club who live in Hanwell and New Maryland began regular nighttime observing sessions that eventually included members of the public. The group was styled as the "Hanwell and New Maryland Astronomy Club"; the members are also members of the Royal Astronomical Society of Canada (RASC). After 2007 the free sessions were held regularly on clear Friday and Saturday evenings in Eaglewood subdivision, with neighbours happy to help by turning off outdoor lights. This was possible because the area has no street lights. In 2009 one of the members completed the RASC "Observe the Universe" certificate program, one of many RASC certificates that the organization promotes.

In 2009 the observing became more structured and formalized, and with a goal of eventually providing a real astronomical observatory the group decided to incorporate. In February 2010 Hanwell Observatory Inc. was incorporated as a non-profit company established for the purpose of public outreach and education about astronomy (Reg. no. 649424).

Regular stargazing sessions have usually attracted up to a dozen attendees; occasionally people came from as far away as Keswick Ridge. All sessions remain free to the public. The RASC programs are promoted, including the "Sidewalk Astronomer" certificate for beginners with a small registration fee. Some revenue has been obtained by producing materials for the RASC and by conducting a private workshop at a conference for a union, but generally all activities are provided on a volunteer basis. Members have also provided stargazing sessions for cubs, scouts & guides, and have been invited to classes in the schools.

In 2016 the stargazing sessions were relocated to the Hanwell Recreation Park parking lot and styled as “Stargazing in the Park”. This has the advantage of having good parking plus the neighbours do not need to be asked for their cooperation. The sessions continue on a regular basis with 44 people now on the contact list. One recent event of great interest was the recent solar eclipse.

In March 2016 a presentation was made to Hanwell Council, which resolved to support the creation of a Hanwell Dark Sky Park. This will make Hanwell a destination for astronomical activities. Sky measurements were taken and the RASC was informed of the initiative. This is still in progress. At this time details are being finalized with suppliers for a community observatory under the “Starships Project”. This was intended to be included in this request for funding this year but not enough details are available yet to meet the October 31 deadline.

The members of the Hanwell Observatory intend to expand the public outreach programs in 2018 to include more stargazing sessions and more visits to the schools, to run an astronomy camp during March break, to have specific solar observing sessions to educate about sunspot activity and solar flares, to coordinate with Science East and the University of New Brunswick, and to contact the hotels, especially Kingswood, with the plans for a Hanwell observatory as a destination.

The need: Requested items for funding

1. The organization began by using members’ personal equipment, some of which is unsuitable for Stargazing in the Park because it is too cumbersome to move conveniently. We have a donated Sky-Watcher telescope with a 150 mm mirror on a dobsonian mount. This was donated to the organization specifically for public outreach; however it is lacking a low power finder telescope or Telrad which makes it a challenge to locate particular stars and planets quickly.

Funding is requested for a **Telrad finder** for the Sky-Watcher 150 telescope.

2. One of the members’ telescopes was a computerized instrument with “Goto” capability; this has since broken down and is severely missed. Its capabilities included tracking of stars and planets as the sky moves. At public events if more than one telescope is available, more than one object can be observed, with each instrument supervised by a separate member. A telescope that is reasonably portable is essential. It is important to have a “Goto” capability to minimize down time when moving from one object to another. The telescope will track objects as the sky moves, avoiding the need to constantly adjust the position. Setting up and aligning a telescope can also be time-consuming, so a telescope that has auto alignment will minimize the setup time. These instruments are commonplace today. There is a fine balance between portability and light gathering (size).

Funding is requested for a **Celestron CPC 800 GPS (XLT) computerized telescope**.

Compatible with Celestron’s Fastar system to be optically fast (f/2) for short exposure astroimaging.

3. People who come to stargazing or sungazing sessions inevitably want to take a photo through the telescope with a smartphone. This was particularly evident when we participated in observing the recent lunar eclipse and the recent solar eclipse. There is no good way to do this right now except hold the phone’s camera near the eyepiece and hope for the best. Smartphone holders are available to solve this problem.

Funding is requested for a **Smartphone adapter**. This would be useable on any telescope.

4. For certain events such as observing occultations and transits, including events involving Jupiter and its moons, a video would be useful to be able to replay and study the event later. The video can be made available to participants at the stargazing sessions. Cameras are available that are made specifically for this purpose. With the same camera a sequence of still photographs can also be taken and “stacked” in order to sharpen a picture, making details like Saturn’s rings more prominent. Whereas a smartphone can take quick souvenir photos, a special purpose camera can bring out many more details in very faint objects.

Funding is requested for a **Celestron Nightscape 10100 camera** (CEL-9555)

5. There are times when the sun is particularly active with sunspots and flares. The sun became particularly interesting during the recent solar eclipse, and a total eclipse is in the not too distant future. Other eclipses will happen in the meantime. The Sky-Watcher telescope has a solar filter that is attached for safe viewing; however, no details can be seen except prominent sunspots, and because of this people generally have a passing interest. A solar telescope with a hydrogen filter will enable the sunspots, prominences and granularity on the sun to be observed and studied in great detail. Solar flares initiate the Aurora Borealis (Northern Lights), and with the solar scope flares can be observed as they occur.

Funding is requested for a **Solarmax III telescope with a 70 mm lens** and 15 mm blocking filter. The Solarmax II 90 would be preferable but is considerably more expensive. A **Celestron CG4 equatorial mount with tripod** is also required for this.

6. Better signage is needed to publicize and identify stargazing sessions when they happen. Currently a sign is cobbled together from a couple of A frame signs that were used at the original location in Eaglewood subdivision but the wording isn’t right.

Funding is requested for **signage to promote the stargazing events** and the location of parking.

How the project benefits the entire Hanwell rural community

There is growing interest in Hanwell in our stargazing program, which is becoming quite well known. Young people who attend are always inspired to learn more. The organization's goals include mentoring and encouraging young people in the study of science and astronomy.

The acquisition of better equipment will permit the organization to expand the outreach program and conduct sessions more often. For daytime outreach events the sun and moon make perfect targets, and with safe viewing through a solar scope even very young children (such as at the daycares) would be able to begin learning about the solar system and the universe.

The organization wishes to continue to provide free recreational activities to members of the public. We have received many favourable comments about the proposed dark sky preserve and maintaining a light-pollution free rural community. Ultimately with the construction of an observatory Hanwell will become a destination for astronomical activities because it is so close to an urban centre and yet retains truly dark sky throughout much of the municipality.

When the community centre is completed this will provide a location for pre-stargazing talks and presentations, thus providing a better understanding before stargazing. Telescope clinics will also be provided indoors to help people set up and use their own equipment, using the organization’s portable equipment to demonstrate.

Detailed budget – specifics of funding request + anticipated income

The organization has no detailed operating budget or capital budget. All events are conducted by volunteers. Any fees that may be collected go toward producing handout material, other supplies that may be needed, and bank charges.

Detailed prices (Supporting documentation from Canadian retailers appended)

Item	KW Telescopes	Ontario Telescope	Khan Scope	Other
1. Telrad finder for Sky-Watcher 150			\$85 + tax	
2. Celestron CPC 800 GPS (XLT) computerized telescope.	\$2,698 + tax	\$2,650 + tax		
3. Smartphone adapter	\$120 + tax			
4. Celestron Nightscape 10100 Camera	\$1610 + tax	\$800 refurbished * + tax	\$800 refurbished * + tax	
5. Solarmax III 70 w 15 mm filter CG4 EQ mount for Solarmax		\$2990 + tax \$410 + tax	\$3032 + tax	
6. Signage				\$295 -The Signpost + tax
Total of selected (BOLD) items	\$1,730	\$6050	\$85	\$295
Tax	\$260	\$908	\$13	\$44
TOTAL	\$1990	\$6958	\$98	\$339

* May not be available at time of purchase. Otherwise we may be able to save \$800 if the refurbished cameras are still available.

Total of all items including tax = \$9,385

Public safety issues

There are none that we know of.

Environmental impacts

None

Timeframe for disbursement

We would like purchasing to happen with delivery before March Break to enable an astronomy camp to be offered. Delivery times remain to be established.

Current financial statements

Statements are included for the past five years as filed with the organization's tax returns, plus 2017 year-to-date.

Conclusion

The directors of Hanwell Observatory Inc. are most appreciative of support from the Hanwell rural community council. Astronomy can be conducted at any time of the year, weather permitting, and the public is eager to learn about the night sky. Purchase of the equipment will be a big step forward to achieve the organization's goals. Funding support is needed in order to maintain and expand activities.

There are many interesting objects in the night sky that can be observed with good quality instruments. These include the planets, the moon, comets, asteroids (including the near-earth asteroids that often come whizzing by), stars (including multiple stars, variable stars, star clusters), nebulas, and distant galaxies. High quality optics and computerized controls make it possible to easily view even the most challenging objects (see the appended article "What Can You See With Different Telescopes").

Astronomy is in the school curriculum for grades 6 and 9, and children have a huge thirst for knowledge.

Parents often comment they had a telescope as a child but it was "just a cheap scope that we couldn't see anything in... these are amazing views!" Also, many parents do not know how to get started and we can show them the different types of telescopes, how to set up their scope, how to use their scope and encourage them to come out and observe with us and explore more areas of the sky.

Making Hanwell a destination for astronomy will give the rural community a unique presence in New Brunswick which should attract many to our area.

I am available personally to discuss this in detail with the recreation committee and with council, and I ask for your serious consideration of this proposal.

Respectfully submitted



Detlef Rudolph
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