PERTH OBSERVATORY VOLUNTEER GROUP

Strategic Plan 2020-2030

lmage Credit: Roger Groom

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Approved by the Perth Observatory Volunteer Group Inc. Board of Directors at their March/April 2020 meeting

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Executive Summary

The Perth Observatory is located on crown land and the infrastructure is owned by the Western Australian State Government Department of Biodiversity, Conservation and Attractions. The Perth Observatory Volunteer Group has run the Observatory since 2015 through an agreement with the Department.

This strategic plan presents the direction for the Perth Observatory Volunteer Group, in the operations and management of the Perth Observatory for the coming decade to 2030. As a not-for-profit and registered charity organisation, our volunteers operate and manage all aspects of the historical, fully operational astronomical observatory located in Perth, Western Australia, by means of donations and income from educational and tourism programs. In addition to providing educational and experiential tours, our volunteers continue to observe the night skies and carry out research in partnership with other academic organisations.

In an ever-changing global world and field of expertise, we must recognise trends, embrace new technology and improvements, and master the political and social landscapes that dictate our future. A detailed discussion of these factors is presented in the Strategic Context section.

Our purpose is to provide education and tourism experiences to stimulate public interest and research in astronomy and space, and its history. Our vision is to be recognised as a leading astronomical and space experience in Australia.

Our Mission is to:

- C Offer outstanding experiences in astronomy, education, nature, culture and tourism run by knowledgeable volunteers
- Get Build upon our status as the oldest operating scientific observatory in Australia through excellent research, Science, Technology, Engineering and Mathematics (STEM) educational programs, onsite and offsite tours and events
- Conserve and provide access to Perth Observatory's history and heritage collection
- C Manage and maintain an environmentally sustainable heritage listed site. Our values are passion, commitment, fun, accountability, boldness and inclusivity.

Our objectives embrace both external and internal perspectives. Our external objectives focus on STEM through astronomical and space science educational programs and tourism experiences that provide the public with a greater knowledge of the planets, galaxies and universe; astronomy and space science conservation and history; and scientific research and academic publications. In order to achieve these objectives, we also recognise the internal factors that make this possible – a dedicated volunteer force that is well-trained and acknowledged by visitors as knowledgeable;



strong financial management; effective internal operations and processes; capital works, repairs and upgrades to our assets and infrastructure; and finally corporate social responsibility in our operations and actions.

Key strategies to make each of these objectives possible are offered, and these form the foundation for the more detailed business plan that presents an implementation road map for our tactical and operational initiatives over the foreseeable future. The factors that we consider critical to our success embrace the areas of leadership, finance, products and services, processes, people, assets and the planet.

In concluding, we recognise that we are still a young organisation, and as such we must work together, be agile, cognisant of trends, learn from our experiences, embrace continuous improvement and keep moving forward.



Contents

Ċ+	Executive Summary	5
Ċ+	Introduction	11
Ċ+	Strategic Context	15
Ċ+	Strengths and Vulnerabilities	21
Ċ+	Competition	27
Ċ+	Purpose, Vision, Mission and Values	29
	🚱 Purpose	29
	ਓ Vision, Mission and Values	31
Ċ+	Objectives and Key Strategies	33
	1. Education	35
	2. Experiences (Facilities, Tours and Events)	35
	3. History, Conservation and Accessibility	37
	4. Research	37
	5. Volunteers	39
	6. Financial Management	39
	7. Internal Operations and Processes	39
	8. Capital Works, Repairs and Upgrades	41
	9. Corporate Social Responsibility	41
Ċ+	Key Success Factors	43
Ċ+	Conclusion	45

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Introduction

This document presents the Strategic Plan for the direction and activities of the Perth Observatory Volunteer Group at the Perth Observatory for the decade commencing 2020. This strategic plan follows from the Perth Observatory Volunteer Group, Strategic Intent 2017.

Originally established in 1896 at Mt Eliza, the Observatory moved to its current location in Bickley, 30 kilometres east of Perth in 1966. Perth Observatory is Western Australia's oldest observatory and was the last of the observatories established in the colonial era to cease as a government run institution. In recognition of its scientific, cultural and historical significance, the Observatory was entered on the State Register of Heritage Places in 2005. Since 2015 the Observatory has been run under a community partnership agreement between the Western Australian State Government Department of Biodiversity, Conservation and Attractions and the Perth Observatory Volunteer Group Inc.

Some of the important research completed at the Observatory include:

- Co-discovered Uranus's ring system
- C Published numerous Meridian Catalogues
- Contributed to the NASA International Planetary Patrol in partnership with the Lowell Observatory

- C Produced 10% of all ground-based positions for Comet Halley using our Astrographic telescope
- C Discovered 30 supernovae using our Automated Supernova Search
- C Discovered 29 Minor Planets between 1970 and 1999
- ✔ Helped discover the super-earth exoplanet OGLE-2005-BLG-390lb

Through the contribution of dedicated, well-trained and highly valued volunteers, our future focus is manifold, aiming to:

- 1. be recognised as Australia's premier astronomical and space education experience for visitors and students of all ages,
- 2. maintain our heritage, cultural history and artefacts and provide inspirational interpretations by passionate and knowledgeable volunteers,
- **3.** remain a working observatory, building on our scientific status with research and publications, as well as sharing our scientific data, and
- 4. provide and manage a leading tourist destination for the public to enjoy.

The operations of the Perth Observatory are financed by income derived from night sky astronomical tours and our education and

Image Credit: Matt Woods

other outreach programs, supported by significant volunteer time with minimal State Government funding. Our rapid development has already drawn praise from the wider volunteering community, and in 2017, we were the winner of the Volunteering WA Community Volunteer Organisation of the Year award and in 2019 were joint winners of the Premiers Science Outreach Award.

The implementation, budgeting and detailed tasks are not addressed in this high-level strategic plan. The detailed operational plan, presented in the Business Plan deriving from this Strategic Plan, establishes an implementation road map and budget for the organisation aligned with the vision and mission.

The remainder of this document discusses the strategic context of our organisation, the Perth Observatory's purpose, vision, mission and values, our objectives and key strategies to achieve those objectives and finally our high-level action plan for the future. A detailed business plan will expand on each of the key strategy areas with a range of initiatives and key performance indicators.



Strategic Context

In order to achieve our goals over the next decade we must be cognisant of the issues and trends that shape our thinking about the future. These topics include the happenings, trends and issues faced at an industry level by all organisations in the astronomy, astrophysics and space science domains. The issues include not only formal scientific and technological matters, but also encompass education, entertainment, tourism, citizen science, cultural - particularly Aboriginal cultural beliefs and practices in astronomy, and inter-generational aspects.

Light Pollution and Threats to the Dark Night Sky

One of the most prominent issues currently facing astronomy is the increase in light pollution resulting in the loss of the dark skies needed to view our solar system and deeper into space. In addition to the increasing light pollution, visual obstruction of the night skies will be exacerbated by the increasing number of satellites launched, with the number estimated to rise from 365 in 2018 to 1,100 per year in the near future.⁽¹⁾ While these satellites will increase the efficiency and footprint of coverage for communications, internet, earth imaging, military, navigation, space science, and weather, this increase in the number of satellites has raised concerns regarding satellite collisions, debris striking spacecraft in orbit⁽²⁾ as well as crowding out visibility of the night sky for astronomical observations and astrophotography. Public education programs and a raising of corporate awareness are needed to ensure the protection of dark night skies for continued optical telescope viewing for education and research.

Political Support for Radio Astronomy

In recent years there has been increasing political support for radio astronomy, with substantial funding for development of the Square Kilometre Array (SKA) precursors and associated deep space research using radio wave observation facilities. Although radio astronomy is providing substantial progress in our knowledge of the history of the universe, NASA has long embraced research and observation using input from a variety of wavelengths including radio, infrared, optical, x-ray and gamma ray emissions. NASA believes a major impediment to integrated research is the social mind-set of scientists who are trained in only one segment of the electromagnetic spectrum, and encourages science education and STEM programs to incorporate more multi-wave knowledge and skills development in order to solve our current and future astrophysical challenges.⁽³⁾ This provides impetus for the Perth Observatory's expansion into additional optical and other spectrum wavelength telescopes and equipment for education and research.

Research Progress in Near Earth Objects

Continued research in near-Earth objects reports more than 18,000 known near-Earth objects in 2018, with additional discoveries averaging 40 per week. NASA's Centre for



Near-Earth Object Studies and the International Asteroid Warning Network scan and catalogue bodies threatening to strike Earth. Research into the detection and redirection of near-Earth objects that could impact Earth is ongoing with significant monitoring being carried out at the Haleakala Observatory in Hawaii and other sites around the world. International cooperation is encouraged in the identification of asteroids that pose a danger to Earth with additional monitoring telescopes planned for the Southern Hemisphere. With experience in building near-Earth object telescopes and research into comet and asteroid exploration, reactivating research activities in this area is highly desirable for the Perth Observatory.

Renewed Focus on Space Science

With the opening of the new Australian Space Agency in Adelaide in February 2020, the Federal Government advised Australia needed to take its place in the global space industry and committed an investment of just under \$700 million in support of Australian businesses to become involved in the US upcoming space missions to the moon and mars. With the Australian Space Industry expected to employ an additional 20,000 people over the next decade, education and qualifications in spacerelated fields incorporating astronomy, astrophysics and space science will be in high demand. The need to build knowledge and experience in space science places the Perth Observatory in a uniquely fitting position to expand its research and education in this field.

Increased Emphasis on STEM in Education Programs

The push for Science Technology Engineering and Mathematics (STEM) education at all levels is the result of an increase in the number of STEM -related jobs in Australia. A substantial number of these positions go unfilled and there are many STEM careers listed in the National Skills Shortage List. Education programs are including more STEM and space science curriculum content supported by activities and visits to museums and planetaria to bridge formal and informal learning. Practical experience and immersion are key drivers for learners of all ages, with today's lifelong learning programs moving away from the 'push' education style to an interactive and experiential journey, seeking to ignite the flame for learning and discovery. The emphasis on developing and delivering STEM skills and knowledge in astronomy and space science provides a solid opportunity for the Perth Observatory to update our scientific technological equipment and expand our experiential educational and outreach offerings for learners of all ages.

Drivers of Change

Several other factors continue as drivers of change for those of us involved in astronomy, astrophysics and the space sciences. The rebuilding of the space industry in the US in preparation for new missions to the Moon and Mars is not only developing new initiatives in research, business and education across the globe but also raising the awareness of the general public and resultant expectations. The media is also regularly providing new information on advances in astronomy, space science and citizen science that add to public knowledge and help to build a more scientifically literate society.

Image Credit: Matt Woods

Advances in technology have provided us with the ability to store, analyse and visualise huge amounts of data for application, immediate access and dissemination. As a result, our expectations are changing - instantaneously available, reliable information is no longer considered a luxury, but a basic essential. However, the costs of such initiatives are prohibitive to many organisations, and general expectations often exceed the level of actual technological development. There is an expectation that organisations will embrace new technology in order to survive in a globally competitive milieu.

Tourism is also evolving as more leisure time, an aging population, the ease of travel, and the quest for memorable exciting experiences are all driving tourism to offer more experiential leisure options.

Sustainable practices require thinking about the environment as a finite source of resources that requires nurturing, conserving and protecting. Sustainable initiatives such as conserving energy, saving water, reusing and recycling waste are increasingly being investigated and implemented. Business organisations are frequently disclosing their ethical, social, environmental, cultural, and economic programs to show their commitment to a sustainable future.

Considerations of diversity and culture are foremost for organisations to appreciate the diversity of human dynamics and prosper in the future. Adopting an inclusive approach is reflected by an organisation embracing the differences that nationality, ethnicity, gender, age, generation, sexual orientation, language, ability, values, goals, and life experiences, bring to its own organisational culture. Cultural diversity and inclusion provide positive opportunities for the Perth Observatory to develop new programs that embrace the multiplicity of our society.

Finally, recognition must be given to those drivers of change that are unplanned and unpredictable, including emerging technologies, political uncertainty and changes in governments, global financial crises, natural disasters such as the virus pandemic of 2020, climate change, demographic trends, societal issues and globalisation. In order to thrive and prosper small organisations like the Perth observatory will need to be agile and quick to leverage opportunities, whilst at the same time managing risks.

- "The number of satellites orbiting Earth could quintuple in the next decade", by Tate Ryan-Mosley, Erin Winick, and Konstantin Kakaes, MIT Technology Review, Jun 26, 2019, Available at: https://www.technologyreview.com/s/613746/satelliteconstellations-orbiting-earth-quintuple).
- "As satellite constellations grow larger, NASA is worried about orbital debris. The space agency argues that these probes need to be de-orbited – reliably", By Loren Grush, The Verge, Sep 28, 2018. Available at: https://www.theverge. com/2018/9/28/17906158/nasa-spacex-oneweb-satellite-large-constellationsorbital-debris
- 3. See https://www.nasa.gov/stem



Strengths and Vulnerabilities

One of the Perth Observatory's greatest strengths is its location within the Perth metropolitan area in a natural setting featuring native flora and fauna. Its history and heritage provide a valuable source of well-maintained historic scientific artefacts and buildings, and the observatory is well-respected for its continued research and work since its establishment in 1896.

All aspects of the Observatory's activities are run by volunteers, and the Perth Observatory Volunteer Group is a registered notfor-profit organisation with approved charity status. The funds raised from tours and events currently meets our basic expenses, however greater administrative oversight is needed, and conservation and protection of historical artefacts and buildings could be increased significantly. Increased income from diverse sources is being sought to ensure greater financial stability in the future.

The reliance on key volunteers in operations, administration and maintenance is a major vulnerability should they leave, become sick or incapacitated. It has proved difficult to recruit, train and retain enough skilled volunteers to cover the workload involved. Moreover, many of our most experienced volunteers are of advanced age and may no longer be able to dedicate the hours required. The appointment of qualified, paid staff will be required to meet increasing demands into the future.

The observatory has an excellent reputation for its day tours,

night tours and other events run by highly committed, well-trained and knowledgeable volunteers. The night sky tours are run all year round, providing both an educational and tourist experience for the public. Our tours are fully booked several weeks in advance and more telescopes and operators are needed to increase our capacity to meet the demand. The astronomical telescopes and equipment used are aging, but of high quality and these are carefully serviced and maintained. The domes that house the telescopes are aged and need constant maintenance and costly repairs. To meet the growing demand for a better and more comprehensive education and night sky tour experience more advanced technology is needed, including the acquisition of a radio telescope and a large optical telescope and dome.

A partially completed concrete dome on the Observatory grounds has been repurposed through art into an Aboriginal astronomy centre named Worl Wangkiny (Noongar for Sky Stories). The structure is unique in Western Australia and provides a focal point for educating visitors on the cultural and practical significance astronomy played in Aboriginal life. The stories are owned by the Noongar people and it is their right to pass them on through tours, however, the POVG needs to work with Aboriginal groups to facilitate the opportunity to tell the stories to visitors to the observatory.



Another of the observatory's greatest strengths is its STEM education program delivered via day tours for schools and other interested groups. These tours are highly interactive and provide a captivating and powerful learning experience for attendees. However, a lack of classrooms and indoor learning space requires most of the activities to be performed outdoors, in all weathers, and the sub-standard ablution facilities also detract from the overall experience.

Perth Observatory houses a collection of over 30,000 glass photographic plates showing the relative positions and magnitudes of southern stars and objects over a period from 1900 to 1999. Under a grant from LotteryWest, the most valuable plates are being scanned to capture and publish their information digitally. The project has already scanned over 18,000 plates. This important database allows astronomers to judge how far and fast individual stars have moved over the intervening years - this is critical in understanding the dynamics of the galaxy. Hundreds of hours of volunteer effort have gone into this project, with the results gaining attention from astronomers world-wide. Additional funding and volunteer time will be required to complete scanning the collection. As well as being scanned, the plates are recatalogued and protected in modern acid-free storage pouches.

Research telescopes in use include a small robotic telescope connected to the Skynet network and available to researchers worldwide. In addition, work is being undertaken on the 61 cm Boller & Chivens telescope (the "Perth Lowell Automated Telescope") to return it to operational condition.

Plans also include acquisition of a medium / large (>= 1 metre) telescope for research work combined with limited public viewing.

Although the volunteers have developed good basic administrative practices, the observatory lacks a manager for day-to-day operations and program management and an administrative person for the financial operations. As the observatory's activities are project based, the lack of project management skills and knowledge needs to be addressed quickly to ensure projects are completed on time and within budget. Policies and procedures require updating and in some cases creation, in line with good governance and best practice. Plans need to be established for risk management, occupational health & safety, investment and other corporate functions. The COVID-19 pandemic has highlighted the vulnerability of the Observatory to shock and subsequent business continuity planning will need to explore ways to increase the resilience of our operations to such shock.

With our resources stretched to the limit, the observatory needs greater marketing exposure to the public, as well as tourists and potential sponsors, as it remains a well-kept secret. An important step in raising the perception of the significance of the Observatory from a scientific and cultural point of view will be enlisting a high-profile scientific person as a champion of the Observatory and an equivalent person in the cultural/ business arena as a patron. Development and resourcing of a comprehensive communications plan will be required.

Income from tours can only provide for the basic needs of the Observatory at present and certainly provides no opportunity for expansion or the improvement of existing services and infrastructure. Tour income cannot be significantly increased at present due to logistical problems with volunteers, the site and telescopes, therefore, to be successful we will need to generate a continued flow of income from sources other than the tours.



This will entail fund raising through a variety of avenues but particularly the corporate sector and government. The observatory currently has no professionally trained fund-raising personnel and needs to build its fund-raising knowledge and expertise quickly.

mage Credit: Geoff Scott

Competition

Our main competitors are other observatories in Western Australia offering night sky tours and STEM educational experiences. The products and services of our competitors overlap somewhat with the offerings of the Perth Observatory however each organisation is working towards different goals. The Observatory was not designed for use by the general public and the aging heritage infrastructure is not able to fully meet the current demands for education, tourism and research Without more appropriate premises for visitors and the public, our future activities will be limited.

The competitive position of the Perth Observatory can be greatly improved by enhancing the visitor experience. From an infrastructure point of views this means the design and development of a new Visitors Centre offering a wide range of amenities such as a, café, planetarium, astrophotography gallery, astro gift shop, a museum designed to provide the better interpretation through interactive visitor experiences and night stargazing and day tour facilities. The grounds could be developed with an Australian native garden, public BBQ and picnic facilities, public ablutions and overnight space camp facilities. In addition to providing a superior all round visitor experience, the new visitors centre must provide equal opportunity and be fully accessible by people with a range of disabilities.

Image Credit: Roger Groom

Purpose, Vision, Mission and Values

Purpose

The Perth Observatory Volunteer Group Inc. is an incorporated not-for-profit body with more than 20 years' experience supporting astronomical education and heritage services at the Perth Observatory. Our purpose is to provide education and tourism experiences to stimulate public interest and research in astronomy and space, and its history.

The objects of the POVG set out in our Rules registered under the Associations Incorporation Act 2015 are to:

- Provide public education services to advance the astronomical interest of the people of Western Australia and beyond, through STEM programs, onsite and offsite tours and events.Provide scientific, tourism, nature, and cultural experiences.
- 2. Provide scientific, tourism, nature, and cultural experiences.
- **3.** Document and conserve the scientific history of astronomy in Western Australia, Perth Observatory's collection of cultural and historic artefacts and records.
- 4. Make Perth Observatory's collections accessible.

- Collaborate with other groups to conduct astronomical and space related scientific research using Perth Observatory facilities
- 6. Maintain a friendly inclusive environment where volunteers can contribute existing skills and learn new ones.
- 7. Promote corporate and social responsibility through sustainable, environmentally conscious practices.

The objectives of conservation of the observatory's collection plus providing education, scientific, tourism, nature, and cultural experiences cannot be achieved without incremental injections of funding for capital works, repairs and upgrades to visitor and volunteer resources. Maintenance and development of the Perth Observatory beyond 2020 will rely on securing new funding sources and building a sustainable volunteer workforce through targeted recruitment and training, strengthening relationships with academic specialists and community groups.

The portfolio of funding streams for infrastructure development will need to span public and corporate sectors as well as private and community sources, underpinned by guaranteed core funds to cover operating costs. This will ensure that the Observatory's buildings and heritage assets are restored and protected and that the stories of scientific discovery are captured and made available for public education and enjoyment.

Image Credit: Matt Woods

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Vision, Mission and Values

Our Vision is for Perth Observatory to be recognised as a leading astronomical and space experience in Australia.

Our Mission is to:

- **1.** Offer outstanding experiences in astronomy, education, nature, culture and tourism run by knowledgeable volunteers.
- 2. Build upon our status as the oldest operating scientific observatory in Australia through excellent research, STEM and educational programs, onsite and offsite tours and events
- **3.** Conserve and provide access to Perth Observatory's history and heritage collections.
- 4. Manage and maintain an environmentally sustainable heritage listed site.

In order to meet our mission, our Values are:

Passion: We undertake our work with enthusiasm and dedication.

Commitment: We build and share knowledge; we act professionally and develop relationships that make a positive contribution.

Fun: Create a warm, friendly environment, celebrating success and generating out-of-this-world fun.

Accountability: We are open and genuine; we work with integrity and honesty and take responsibility for our actions.

Boldness: We explore new knowledge and opportunities and embrace innovative thinking with considered and confident action.

Inclusivity: Serve all with sensitivity, respect, fairness, consideration and caring.

Vision

To be recognised as a leading astronomical and space experience in Australia

Mission:

Offer outstanding experiences in astronomy, education, nature, culture and tourism run by knowledgeable volunteers; Buld upon our status as the oldest operating scientific observatory in Australia through excellent research. STEM and educational programs, onsite and offsite tours and events; Conserve and provide access to Perth Observatory's history and heritage collections; Manage and maintain an environmentally sustainable heritage listed site.



Objectives and Key Strategies

This strategic plan presents a road map for the Perth Observatory to follow to arrive at our desired destination. Our strategic objectives present an image of the long-range vision we have for the organisation in 2030, and the key strategies provide a more focussed plan of our actions to achieve those objectives.

Figure 1 illustrates the Strategy Map for the Perth Observatory Volunteer Group. Our first four strategic objectives are external objectives and encompass the areas of education, experiences, history and conservation, and research. Achievement of these external objectives requires sound financial management and effective operations and asset management. In turn all of the above is dependent on the recruitment and training of a dedicated volunteer force and the consideration of corporate social responsibility in all that we do. Our values drive our actions and consideration of sustainability in all its forms is foremost in our planning and actions.



Objective 1: Education

Provide public education services to advance the astronomical interest of the people of Western Australia and beyond, through STEM and space science programs, onsite and offsite tours and events.

Key Strategies for Education

- C Develop and enhance STEM, astronomy and space science education and outreach programs through onsite and offsite tours and events.
- C Explore ways to foster an understanding of the context of modern astronomy and ancient indigenous astronomy.
- Expand the reach of public education and outreach through social media, advertising and networking to attract more visitors and participants in events.
- Provide, maintain, replace and expand education equipment, resources and infrastructure, as required including classrooms, interactive learning tools and environments, overnight accommodation and ablution facilities.

Objective 2: Experiences (Facilities, Tours and Events)

Provide inspirational scientific, tourism, nature, and cultural facilities and experiences.

Key Strategies for Experiences

- Get Build an understanding of customer expectations and needs and manage the customer/visitor experience through online and physical touchpoints driven by a focus for excellent customer service and a high-quality tour product
- ✔ Find a high-profile scientific person as our champion and a high-profile person in culture/business to be our patron.
- ℭ Build a Visitor Centre encompassing a Museum, Gallery, Astro shop, Café.
- Provide proficient telescope operators, demonstrators, presenters and hosts for astronomy themed tours and other events.
- ℭ Work with Aboriginal bodies to utilise Worl Wangkiny to tell the story of Aboriginal astronomy.
- C Promote Astrophotography among volunteers, photographers and the public
- Build scientific and tourist attractions including a Planetarium, Radio telescope, very large optical telescopes, Lego Lab and other hands-on activities for children, virtual reality experiences.
- 🔆 Develop and manage space science experiences.
- Get Build and manage tourism, nature and cultural facilities, experiences and events.
- C Promote and manage a range of private events on the observatory grounds and facilities.

Image Credit: Zal Kanga-Parabia

Objective 3: History, Conservation and Accessibility

3A - Document and conserve the scientific history of astronomy in Western Australia, Perth Observatory's collection of cultural and historic artefacts and records.

Key Strategies for History and Conservation

- Continue the research, documentation and cataloguing of the Observatory's significant collection of instruments, artefacts, books and records.
- Collaborate with heritage experts for advice on conservation and interpretation planning
- C Secure funds to provide an adequate storage environment for artefact, image, data and records.
- C Undertake conservation actions on objects in accord with their priority for treatment as determined by their assessed significance.
- C Engage with local historians, museum curators and librarians to assemble and display oral histories documenting the contribution of WA's science community to internationally significant research.
- 3B Make Perth Observatory's collections accessible.

Key Strategies for Accessibility

- C Develop images of cultural and historic artefacts and records for digital storage and maintain a register of their location and condition.
- Make the Perth Observatory's collection of cultural and historic artefacts, images and records available on digital media and online searchable databases through a portal.

Objective 4: Research

Collaborate with other groups to conduct astronomical and space related scientific research using Perth Observatory facilities.

Key Strategies for Research

- Facilitate research through collaboration with local, national and international scientists and astronomers using Perth Observatory's instruments and expertise.
- C Refurbish the existing research grade telescopes and make them available for research use.
- C Establish a large (>= 1m mirror) optical telescope for research purposes.
- C Establish a radio telescope for research and demonstration purposes.
- C Liaise with astronomers to host equipment that collects and analyses astronomy and space information, in the public interest.
- C Engage with science scholars and communities to collect and display historic and emerging stories that explain concepts in astronomy, cosmology and space research.

Image Credit: Roger Groom

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Objective 5: Volunteers

Recruit dedicated volunteers and maintain a friendly inclusive environment where volunteers can contribute existing skills and learn new ones.

Key Strategies for Volunteers

- C Recruit and train committed volunteers to:
- Be proficient telescope operators, demonstrators, presenters and hosts for astronomy themed tours.
- 🚱 Preserve and maintain historical and heritage artefacts.
- Manage and deliver astro-tours and other cultural and nature events.
- Promote the European heritage of the Observatory, the Aboriginal astronomical cultural facility Worl Wangkiny and manage the site as a hireable venue for private events
- G Contribute to research and citizen science.
- Manage and deliver administration, astronomy and space science, tourism, nature and cultural projects.
- & Provide social activities to build positive relationships.
- & Build processes of communications to keep volunteers informed.

Objective 6: Financial Management

Develop financial viability through reliable financial management planning and processes and diverse sources of income.

Key Strategies for Financial Sustainability & Management

- C Ensure financial sustainability by growing revenue from diverse sources.
- 🔆 Maintain financial governance and a balanced budget.
- Cost management through new and sustainable initiatives.

Objective 7: Internal Operations and Processes

Develop expertise in a range of management areas to ensure effective operations management.

Key Strategies for Internal Operations and Processes

- C Ensure effective operations management through welldefined operational governance, and efficient processes.
- C Regularly review and maintain operations management policies, processes and procedures.
- 🔆 Build project management skills in a group of key volunteers.
- Get Build essential management plans including risk management, business continuity and disaster recovery plans, and regularly test these plans.
- Update plans for environmental emergencies, i.e. fire, chemical, etc. and ensure volunteers are trained appropriately.
- C Ensure relevant occupation health & safety plans and procedures are in place and all volunteers receive the required training.

Image Credit: Matt Woods

Objective 8: Capital Works, Repairs and Upgrades

Undertake upgrades of assets and infrastructure, including scientific instruments, telescopes and ICT, grounds, heritage and other buildings, supporting facilities and amenities.

Key Strategies for Capital Works, Repairs and Upgrades

- Cobtain funding for capital works to:
- Design and build a new 'space science' themed Visitors Centre to provide the necessary facilities (commercial kitchen, café, ablutions) to achieve the objectives for education and tourism.
- Design and build a Collections Storage & Management facility to house and preserve all heritage artefacts.
- ਓ Obtain and erect classrooms for school education tours.
- Improve facilities for the public visiting the observatory including parking and picnic areas.
- Procure and install a Solar Generation and battery backup system to reduce operational costs and our carbon footprint.
- Procure a Generator to support critical functions at the Observatory.
- ✓ Install a fire suppression system in critical heritage artefact storage areas
- ♂ Replace the old electrical infrastructure.

- Perform upgrade works on University, Lowell and Meridian domes to provide extended functional facilities.
- C Develop an alternative entry / egress road for emergency situations and large events where Walnut Road becomes over-congested.
- C Maintain the heritage buildings and grounds to the standards required in agreements with the Western Australian State Government and its heritage listed status.
- C Seek funding for a multi-purpose vehicle that could be used to support Observatory tours and transport volunteers and equipment to outside events.
- C Maintain the supporting facilities and amenities.
- Acquire, repair and maintain the scientific instruments, telescopes and the Information and Communications Technology infrastructure.

Objective 9: Corporate Social Responsibility

Promote corporate and social responsibility through sustainable, environmentally conscious practices.

Key Strategies for Corporate Social Responsibility

- C Update and promote sustainable practices to reduce our carbon footprint throughout the organisation by reusing, recycling and reinventing.
- C Implement renewable power generation facilities to reduce our carbon footprint.



Key Success Factors

The critical success factors are those factors that determine the success or failure of an organisation to achieve its mission and strategic goals. These factors are key areas that must be fulfilled for the organisation to survive and prosper and need to be closely monitored by management.

The critical success factors for the Perth Observatory Volunteer Group are:

Leadership - Strong strategic direction through visible leadership, strategic thinking, effectual management, effective communication, planning and delegation, talent management, and motivating with passion.

Financial - Ample revenue through expanded customer offerings, fund raising, sponsorship and donations to ensure financial stability.

Products/Services - Inspirational education, tourist, scientific programs and experiences that are well promoted and valued for their knowledge content, innovation and enjoyment.

Process - Efficient operations sustained by relevant resources through well planned and managed projects, focussed on continual process improvement.

People

- volunteers who are cohesive, highly trained and passionate with a customer service focus operating in an inclusive, supportive and friendly environment.
- C paid staff to manage key activities such as accounts and the future cafe.
- "champions" who are high profile external advocates to help present the observatory to the public, the scientific community and the business community.

Assets, Infrastructure and Equipment - Adequate and reliable assets, infrastructure, equipment and facilities through acquisition, implementation, customisation and maintenance, assisted by major partners.

Planet - Sustainable and renewable initiatives embracing reuse, recycling, repairing and reinventing to protect our planet.

lmage Credit: Roger Groom

Conclusion

The definitive goal of this strategic plan is to shed some light on the desired future we could, and would like to, achieve. It provides guidance to the POVG management team, our volunteers, and all our stakeholders, for the journey forward in our quest to become a leading force in the astronomy and space science field, particularly in our specialisations of historical and scientific education, experiences and research. We must be agile, cognisant of trends, embrace continuous improvement and keep moving forward.

As a young organisation, we will succeed in many areas due to our dedication and strength of purpose, but we may also stumble and fall along the way, however, we will learn from our experiences and they will make us stronger. In order for the Perth Observatory to be a success throughout the next decade we must move forward together, ensuring that our partnerships with all stakeholders remain strong. We must remember and embrace our values; respect and value the contribution of all our members and partners; have fun along the way and celebrate our successes.

