

NCA response to Exposure Draft of NCRIS Strategic Roadmap

The National Committee for Astronomy (NCA) welcomes the support for the astronomy infrastructure identified by the NCRIS committee in the Exposure Draft of the Strategic Roadmap. It is pleased to note the extent to which the Astronomy Decadal Plan has informed the NCRIS committee in their deliberations.

Questions raised in the Exposure Draft

The NCA offers the following responses to the specific questions posed in the Exposure Draft.

- *How the needs listed above might be further prioritized*

Via the Decadal Plan, significant community prioritisation has already gone into producing the highest priority items listed in the NCRIS exposure draft. Any further prioritisation would be carried out by the same consensual process, with full community consultation facilitated by the National Committee for Astronomy.

- *The impact the anticipated SKA siting decision would have on the prioritisation*

On the basis that the siting decision will deliver an SKA capable of realising Australia's scientific aspirations as laid out in the Decadal Plan, the decision will have no effect on the SKA's prioritisation.

- *The process for considering Australia's involvement in next generation infrastructures*

The Exposure Document highlights Australian partnership in an ELT (cf. Section 7) as one of three high-priority 'Landmark' facilities¹. The scale, and international character, of an ELT project imply that a greater degree of government participation, as well as government funding, is needed. It is important that Australia engage early in the series of staged developments that such large international projects will require.

Maximising Australia's benefits from an ELT project will require a spending profile that parallels that of the other partners, on a similar timescale. The ELT working group of the NCA has identified the Giant Magellan Telescope (GMT) as the most promising ELT project for Australian partnership.

Similar levels of government participation and the development of a clearly-defined roadmap will be required for most, if not all, Landmark facilities. The high level of national and international cooperation in astronomy, existing industrial links, and experience in managing large international infrastructure, place astronomy in a unique position to help define the process by which Landmark facilities will be implemented.

The NCA therefore recommends that:

¹ The NCA response focuses on the ELT as the first astronomy infrastructure to be considered as a Landmark facility, on the basis that SKA Phase 1 is supported in NCRIS. Many of these principles would also apply to the full SKA as a Landmark facility when it is likely to be considered towards the end of the NCRIS period.

- Australian partnership in the GMT be the first major item of astronomy infrastructure to be put forward as a Landmark proposal.
- A GMT Landmark Facility committee be established promptly by governmental, industrial and academic partners to
 - define the governance of Australia's membership of GMT;
 - develop a business case for establishment of this first Landmark facility;
 - define the necessary spending profile and the stages at which specific commitments need to be made, and;
 - identify sources of funding for pre-Landmark proposal stage and, beyond this, robust sources for whole-of-life funding

Additional comments on the Exposure Draft

In addition to these issues, the NCA proposes that the NCRIS consider two minor changes to the infrastructure requirements in the optical and radio astronomy capability.

First, the NCA proposes the following change to the first bullet point in Section 6.10 of the NCRIS Exposure Document to:

- Additional support for the Anglo-Australian Observatory (AAT optical/infrared telescope)

Consistent with the Decadal Plan, the NCA strongly endorses the statement in the Exposure Draft that the AAO and ATNF are high priorities for continuing support. However, the NCA notes that no direct support from NCRIS is required for the ATNF, but that additional support will be required for the AAO on the basis of the UK's reduced level of participation in the AAO.

Second, the NCA proposes the revised wording to the third bullet point to:

- Access to the equivalent of 20% of an 8m-class telescope through the existing Gemini partnership and through new telescope and instrument agreements.

This maintains the infrastructure requirement at the same level as previously outlined in the Exposure Draft, but maximises the flexibility required to deliver the science outcomes. It includes the potential to develop Antarctic facilities.

Finally, the NCA welcomes the statement in the Exposure Draft that *Australia also needs to maintain the domestic infrastructure which constitutes the bulk of observing capacity for Australian astronomers*. The NCA takes this to indicate that the NCRIS committee recognizes an ongoing need to support, in a strategic manner, an appropriate range of domestic (including University) infrastructure.

University astronomy infrastructure, through its research and training outcomes, was seen as being of fundamental importance to the ongoing health of Australian astronomy in the Decadal Plan. Current funding mechanisms were deemed unsustainable, and the Decadal Plan proposed an ARC rolling grant mechanism as one route to supporting such infrastructure.

The NCA encourages the NCRIS committee to provide further guidance via the strategic roadmap on how University infrastructure for research and training may be supported in the broader national context.