

Association of Universities for Research in Astronomy

MEMORANDUM

TO: Board of Directors
Member Representatives
Management Councils

FROM: William S. Smith, Jr.
President

SUBJECT: Status of AURA's Activities on GSMT and CELT

DATE: May 7, 2003

During the May 1, 2 AURA Annual Meeting, several Member Representatives requested further information and clarification on the status of AURA's activities for the Giant Segmented Mirror Telescope and our relationship to CELT.

AURA's New Initiatives Office, created in January 2001, completed its initial point design activities for a GSMT in early 2002 and made that document widely available (see AURA website). CELT completed its point design in roughly the same time frame and it was recognized that there were many areas of compatibility and differing strengths. These perceptions led to an ongoing exchange and series of discussions.

On February 25, Caltech and the University of California issued the joint statement "*Caltech and the University of California have reached an agreement to form a CELT partnership with the intent of submitting a single proposal to the Moore Foundation to fund 1/2 of Phase II. That CELT partnership supports the attached draft letter of intent to engage AURA in the project.*" (Letter of intent discussed below).

During the February 26, 27 meeting of the AURA Board of Directors an extensive discussion was held regarding the GSMT and the expressed intent by CELT. Major reasons cited for pursuing a partnership with CELT included the following:

- The strongly implied identification of CELT in the Decadal Survey as the nominal GSMT. The AASC report stated "*In addition to... OWL, there are three other programs in the early planning stages: MAXAT, a 30-50m telescope (NIO at NOAO), CELT 30-m class (Caltech & University of California), and ELT, a 25-m scale-up of the HET (Penn State & Texas). The GSMT described here corresponds closely with CELT or MAXAT. Although it is too early to judge the future direction of these projects, we believe that GSMT could evolve directly from either of these initiatives, one from the private, the other from the public sector, or from a joint project created by merging of these two.*"

- The desire of the AURA Board to ensure a technical path to a partnership on OWL, a comparable but larger segmented mirror telescope.
- The recompetition process for NOAO and subsequent negotiations mandates that AURA play a major role in implementing the initiatives of the Decadal Survey and pursuing public/private partnerships. The goal of this mandate was to provide a public role during the design and development of these facilities and access to them during the operation phase.

In discussing the process by which priorities are set and decisions made over the near term, the following principles were articulated:

- Our priorities should reflect the nominal set of Decadal Survey priorities
- Federal investments made through AURA should benefit as much of the community as practicable
- AURA should enable the user community to have a strong voice in all phases of any program that will have a public aspect. This requires a full intellectual partnership at the outset of the program.
- Consistent with the above, let no doors close (i.e. respond to opportunities as they arise, avoid precluding or forgoing participation).

The AURA Board subsequently adopted as a resolution the text of a Memorandum of Understanding, also identified by CELT as the Letter of Intent referred to in their statement. This resolution is included in Attachment I. The intent is to establish a functioning governance at the outset which will ensure AURA participation in all decision-making on behalf of community scientific interest. This interim phase of governance would be superseded by AURA's formal joining of the CELT Partnership at such time as AURA is successful in securing matching funds through a design and development proposal to the NSF.

AURA intends to submit a proposal to the NSF which will address design and development needs for a GSMT. It will be referenced to CELT and represent a public matching fund. AURA's contribution to the overall effort will be to address technology needs (e.g. adaptive optics, mirror coating, site characterization, end-to-end modeling, etc.) that are common to any present or future effort to undertake a next generation large telescope. That is, AURA's proposal, while directly contributing to CELT, will provide design tools, and technologies relevant to any other effort. All data will be publicly available and AURA will make an effort to ensure that, in contributing to CELT, we are enabling other potential facilities.

Our goal is to submit this proposal by mid summer, as early as June. It is also expected that the Science Working Group will also submit their first report at that time. Thus, seen from the NSF standpoint, there will be available an AURA proposal to begin a Federal investment, and a report from the SWG outlining those prerequisites for enabling a compelling science case. In conducting the peer review, the NSF will be able to instruct the reviewers to consider the SWG report if it so desires.

It is envisioned that the design and development phase will take about 3 to 4 years to complete. A successful AURA proposal will also constitute the signal to formally join CELT in forming a corporate partnership for the duration of this phase. At the end of this time, a decision will be made concerning the next step. This will involve a commitment to a design, an aperture size, a site, scientific and technical performance goals, etc. At that point the NSF and AURA will need to make a decision concerning further

participation and a possible commitment to operate the telescope. As above, AURA's goal in participation is to ensure that community scientific needs are met during the planning, design, construction, and operations phases.

Notwithstanding the work with CELT, AURA intends to remain engaged with other telescope projects which may also mature. In particular, AURA has conducted three major meeting with ESO over the past three years with the clearly expressed intent to consider a partnership in an OWL type project should that materialize. AURA's work on CELT will clearly be a stepping-stone to that potential partnership.

In addition, AURA has remained engaged with groups within the US and Canada seeking to build a 20 M telescope. The most prominent of these is the Magellan 20 project. While this is smaller than the 30-m concept described in the Decadal Survey, there is no question that a 20 m telescope can provide a powerful complement to JWST and a CELT should they be operating at the same time. Ideally, a 20-m and 30-m telescope operating in different hemispheres would provide a powerful scientific suite of facilities for the astronomical community.

In addition to ensuring that the design tools and technologies developed in the CELT referenced proposal are useful to 20-m projects, AURA will consider additional ways of participating that could end up providing a public component. Pending the outcome of design and development studies and discussions with the NSF about the long term construction and operations funding that might be available to the community, these additional avenues are extremely important to pursue.

**LETTER OF INTENT
BETWEEN**

**THE CELT PARTNERSHIP
AND
THE ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY**

Whereas the highest priority recommendation of the U.S. Astronomy and Astrophysics Survey Committee in ground based astronomy over the next decade is an extraordinarily powerful 30 meter class Giant Segmented Mirror Telescope; and,

The Committee recognized that such a telescope must be undertaken by a broad partnership of public and private institutions;

Whereas The CELT Partnership (hereafter CELT, comprised of The California Institute of Technology and The University of California) and AURA through its New Initiative Office have undertaken comparable design efforts aimed at developing such a telescope; and,

These institutions have entered into discussions with the purpose of working more effectively to achieve complementarities in their respective efforts,

We conclude that the formation of a full partnership between CELT and AURA will provide a basis for examining the feasibility of designing, building, and operating the telescope and its support facilities.

Recognizing that partners seek through their respective means funding for such a project, including the submission by CELT of a proposal to the Moore Foundation and the submission of a proposal by AURA to the National Science Foundation,

We conclude that an interim governance should be established in order to manage initial technical and other activities until such time as funding and necessary approvals are obtained by each partner.

Therefore, we resolve to establish an interim management board that will coordinate all necessary initial activities leading to a full Agreement establishing a non-profit entity.

Further that the parties to this Memorandum consider that they are bound by this Memorandum to work in good faith until such time as they are able to fully join in an entity, or that changing circumstances preclude they joining such an entity.