



ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY, INC.

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November 28, 2005

Members of the Board of Directors  
Giant Magellan Telescope  
C/o Dr. Wendy Freedman  
Carnegie Observatories  
813 Santa Barbara Street  
Pasadena, California 91101

Dear members of the GMT Board,

Thank you for your letter of November 14, 2005 regarding the Giant Segmented Mirror Telescope and AURA's work on the design and development of this highly rated decadal survey facility. In the decadal survey *Astronomy and Astrophysics in the New Millennium*, the Astronomy and Astrophysics Survey Committee identified the next generation of astronomical facilities and stressed "effective national organizations are essential to coordinate, and to ensure the success and efficiency of these systems. These national organizations should work with the universities and independent observatories in developing the next generation of telescopes." This is elaborated in a later chapter: "Community participation in major national telescope initiatives must be led by an effective national astronomy organization working in concert with universities and similar institutions."

This is fundamentally what AURA has attempted to do, first by developing a science case for GSMT, second by developing a point design for the thirty meter class telescope envisioned by the Decadal Survey, and third by merging that design with two other similar designs, CELT and the Canadian VLOT design which also took the Survey as their points of departure. As you know, our proposal to the National Science Foundation was aimed at providing resources to develop, not only the technology approach encompassed by the Thirty Meter Telescope, but an alternate design as well. We have relied heavily on the GSMT Science Working Group for guidance on this approach. After the design and development phase of the current two efforts, it is my understanding that the NSF will pick a flagship facility and a new phase will begin.

Your letter addresses the internal work the New Initiatives Office staff has been doing thus far and projected in the Senior Review submission. For the most part, this work is matched to the institutional skills and interests for both NOAO and Gemini and is an

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extension of the efforts began immediately following the release of the Decadal Survey. The AURA Board carefully considered these factors as well as the possible linkage to the work of ESO in endorsing our partnership in the TMT. Although the GMT requirements do not fit these strategic aims as directly, they nevertheless constitute a valid technical approach and we have assumed a strong advocacy in ensuring they are properly funded.

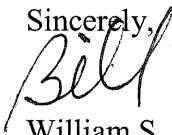
Now that the AURA proposal has received its first increment of funding, I look forward to concluding the next step in the process, which will be to establish a more direct link to the alternate design team through the awarding of a subcontract. At that point we will identify a clear NOAO interface that will devote a substantial portion of his/her time to GMT. Clearly, there may be other NOAO staff members having an expertise or skill that may be desirable in maturing the GMT design.

Having said this, it should be pointed out that NOAO's ability to contribute to either effort through in-house resources is extremely limited in the present budget environment. For this reason, we have envisioned the full funding of the GSMT proposal itself as the most important factor in achieving a viable design for either effort. In addition, I believe that the ability of TMT and GMT to raise funds privately may offer more hope in the present circumstances.

With these caveats, I have consulted with the Director of NOAO, as you suggested in your letter, and he is exploring a number of possibilities. These include hydrodynamic simulations of airflow and seeing at relevant sites and specific dome architectures, access to site testing data at high sites (to enable mid-infrared use of GMT), and preparation of a conceptual design for a GMT instrument. He suggests that Matt Johns and Steve Strom continue discussions of these possibilities. Their earlier discussions in the context of the AURA GSMT proposal were cordial and fruitful.

As always, I appreciate your input and I look forward to continuing to meet with the GMT Board as appropriate.

Sincerely,



William S. Smith, Jr.  
President