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Dr. William Smith, President  
AURA, Inc.  
1212 New York Avenue NW, Suite 450  
Washington, DC 2005

Dr. Wayne Van Citters, Director  
Division of Astronomical Sciences  
National Science Foundation  
4201 Wilson Blvd  
Arlington, VA 22230

Dear Bill and Wayne:

Noting the upcoming AURA Board meeting, I am writing to restate the continuing interest of the TMT Board in forming a partnership with NSF and AURA.

TMT established such a public-private partnership with AURA in June 2003. With endorsement by the AURA Board, we signed a CELT-AURA Agreement that led to a very productive partnership for over three years. The TMT Science Requirements Document was developed with full participation of the AURA members of the TMT SAC, and there was substantial progress in a well-funded Design and Development Phase (DDP) with AURA and community engagement in our science and technical committees and in TMT instrument concept studies. This productive public-private partnership was suspended in late 2006 after consideration by NSF of the recommendations of the Senior Review.

Despite the regrettable loss of AURA from the TMT partnership, TMT has maintained its progress. In September 2007 the Moore Foundation contributed a further \$15M in order to complete our \$80M DDP, and a very significant milestone was achieved in November 2007 with the announcement of a \$300M commitment toward its construction from the Moore Foundation, UC, and Caltech. We remain committed to re-engaging AURA in the TMT partnership and continue to believe that NSF participation in a giant segmented mirror telescope is crucial for the future health of US astronomy. TMT admirably fulfills the role envisaged in the 2000 Decadal Survey and will be competitive with even a modestly larger telescope such as that planned by ESO.

Turning to the current status of TMT, the committed partners currently include Caltech, the University of California, and the Association of Canadian Universities for Research in Astronomy. Japan, as represented through its National Astronomical Observatory, has maintained a strong interest in TMT. At an open meeting, the Japanese astronomical community voted enthusiastically to join the project and, as a result, Japan has observer status on all our decision-making bodies, including the TMT Board. Japanese astronomers are already working harmoniously with us on our first light instrument designs, and we are working actively toward a formal agreement for their participation in observatory construction and operations.

We have recently reached an important agreement with ESO with a view to coordinating technological development between our two projects. This will lead to reduced costs in areas where our designs are very similar (primary mirror production and adaptive optics), and opens the way for broader discussions including shared instruments, exchanging time, and joint archiving.

The capital cost of TMT in FY2006 dollars (including the first suite of instruments and contingency) is \$760M. In real-year dollars for a technology-driven schedule this amounts to just over \$1B. An international external advisory panel has repeatedly praised the validity and depth of our DDP activities, strongly endorsing our progress at our Conceptual Design Review (May 2006) and Cost Review (September 2006). In April our exhaustive site testing campaign draws to a close, and in June our construction proposal and its schedule will be externally reviewed. We are undertaking an intensive exploration of the possibility of placing TMT on Mauna Kea, and discussions are well advanced for securing a permit for construction on Cerro Armazones in Chile. We anticipate reaching a final site decision in June 2009.

Let me conclude with the following observations:

- TMT has demonstrated its ability to work constructively with the US community via AURA towards realizing the goal of a public-private partnership consistent with the recommendations of the 2000 Decadal Study. Our regard for the importance of a public-private partnership were clear and remain unchanged, and we look forward enthusiastically to a timely resumption of that partnership.
- TMT has maintained excellent progress since the Senior Review. The design and costs have been rigorously reviewed and endorsed, and a construction proposal has been developed. The largest private donation in astronomical history has been made by the Moore Foundation in order to encourage a lasting partnership with the federally supported US community.
- A business plan has been developed for the construction phase, consistent with NSF's aspirations for significant access (at around the 30% level) and its likely timetable for available funding. This involves a strong commitment from Canada, consistent with their national plan for 25% participation in both the capital and operational phase. We look forward to detailed discussions with you based on our business plan.
- Important connections have been established with crucial international partners capable of significant contributions – Japan and ESO. Substantial capital and operational contributions may result in the former case, and economies of scale and opportunities for collaboration in the latter case. Both cases would benefit from a clear US strategy.
- Finally, the TMT Board believes that TMT maintains a three-year lead and will complete its \$80M design development phase in March 2009 with an endorsement of construction readiness by an independent panel. The board is concerned that NSF funding may not support timely substantial public participation in two US-led large telescopes and urges AURA and its relevant bodies to examine carefully the merits and feasibility of advocating support for two large US telescopes in the context of the upcoming Decadal Survey.

I would be happy to elaborate further on any of the above.

Sincerely,



Henry Yang  
Chair of the Board of Directors  
TMT Observatory Corporation

cc: Edward C. Stone, TMT Vice Chair