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## I. PROGRAM BACKGROUND

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The highest priority “moderate initiative” for ground-based O/IR astronomy in the current decade, as recommended by the National Research Council’s Astronomy and Astrophysics Survey Committee (*Astronomy and Astrophysics in the New Millennium*, 2001, p. 107) was the creation of a Telescope System Instrumentation Program (TSIP). In the decadal survey report, TSIP is envisioned as a \$5 mil. per year instrumentation grants program that would have several positive effects on the emerging paradigm of an “integrated observing system.” The “system” concept is a new perspective on the public and private facilities used for ground-based O/IR astronomy, in which complementarity and cooperation provide motivation for strategic decisions. The O/IR panel report describes TSIP as having three goals:

1. “... Guid[ing] the evolution of the telescope system so that it becomes more powerful and more diverse; it would do this by, for example, favoring instruments with unique capabilities and those that would be particularly effective in reaching ... scientific goals...”
2. “Achieving greater public access to these facilities”
3. “Encouraging and leveraging the contribution of institutions that contribute nonfederal funds to the U.S. astronomy enterprise”

Formally established by the National Science Foundation in 2002, TSIP is designed to accomplish these goals by funding the development of instruments or other improvements for the telescopes of the private observatories, in exchange for which telescope time on those facilities is made available to the community.

Funding for TSIP is provided by the National Science Foundation Division of Astronomical Sciences. These funds pass to successful TSIP proposers through sub-awards that are first approved by the NSF, then issued and administered by the Association of Universities for Research in Astronomy (AURA) through the National Optical Astronomy Observatory (NOAO). NOAO is responsible for project oversight of successful proposals so as to assure cost and schedule performance for these sub-awards.

### TSIP-Funded Projects To Date

In its first three years (FY 2002–2004), TSIP has funded four instruments, three of them to completion and one for design work only. Instruments for the Keck telescopes funded by TSIP include OSIRIS (\$3.89M), an integral field IR spectrograph, and the preliminary design work for KIRMOS (\$2.58M), a near-IR multi-object spectrograph. MMIRS (\$2.50M), a “fast-track” multi-object IR spectrograph for the MMT and Magellan telescopes, was funded by TSIP in FY 2003. MODS-2 (\$2.62M), an optical multi-object spectrograph for the LBT, was funded by TSIP in FY 2004. As a result of TSIP funding, the community will have received 56 nights on the Keck telescopes, 27 nights on each of the MMT and Magellan telescopes, and 25 nights on the LBT.

#### New Categories of TSIP Funding in FY05

In May 2004, NOAO organized a community workshop, "Building the System from the Ground Up," in Alexandria, Virginia. Organized as a forum for members of the community to discuss how the TSIP program might evolve to encourage broader development of the ground-based O/IR System, the recommendations from that workshop encompassed four broad goals: (1) acknowledge that improvements to instruments or scientific operations can have as much scientific impact as the creation of the instrument itself, (2) make the process for independent observatories to sell telescope time simpler, (3) incorporate a strong desire for software pipelines and archives into plans for instrument development, and (4) provide a path for medium-sized telescopes to become part of the system. The full report from the workshop can be viewed at [http://www.noao.edu/meetings/system2/system2\\_report.pdf](http://www.noao.edu/meetings/system2/system2_report.pdf)

As a result of those community-based recommendations and subsequent discussion with the AURA Coordinating Council of Observatory Research Directors (ACCORD), the categories, definitions, eligibility requirements, and types of funding for TSIP proposals have changed significantly this year. There are now two categories of TSIP proposals: *System Improvement* proposals and, beginning with this FY05 program, *System Access* proposals.

#### System Improvement Proposals

These are proposals that will lead to enhanced scientific capability within the ground-based optical/IR System. System improvement proposals are required to provide community observing time equivalent in value to 50% of the TSIP funds awarded. (A proportional reduction in community observing time is allowed for the particular case of consortia in which NOAO is a partner; see section III. below on *Proposed Community Access Time* for more details.)

*System Improvement* proposals can request funding in three specific areas:

- Design and construction of new, facility-class instruments for existing or pending telescopes, i.e., optical or infrared instrumentation of any kind (including adaptive optics systems) for any telescope now in operation or under construction. Proposals of this type may request multiple (up to five) years of funding.

Proposals for new instrumentation must include plans for two clearly distinct project phases: (1) a definition and design phase (Phase AB), and (2) a construction and commissioning phase (Phase CD). The design phase concludes with a Critical Design Review (CDR) that verifies the cost and schedule for the construction phase.

All funded projects for new instrumentation will be reviewed at the time of Critical Design Review (CDR). If the CDR leads to significant changes in cost and schedule compared to the original proposal, the decision to renew TSIP funding for continuing effort through the construction phase will be contingent on an external peer review and re-evaluation.

- Improvements or upgrades to existing instrumentation: e.g., new focal plane detectors, improved pipeline data reduction software, or new optical components. These proposals are limited to one year of TSIP funding.

- Significant upgrades to current facilities or operations. As with proposals to upgrade instrumentation, proposals to upgrade facilities or operations are limited to one year of TSIP funding.

TSIP awards in this category may not be used for salaries of observatory personnel; TSIP funds may only be used for capital items or external contracts relating to the significant upgrade of facilities of operations. The intent is to prevent TSIP funds from being used to replace existing operating funds or to fund upgrades that were already part of the planned operation activity.

### System Access Proposals

The second type of TSIP funding available in FY05 is for proposals that seek to sell telescope time to the community—i.e., to provide community observing time equivalent in value to 100% of TSIP funds awarded. System Access proposals may request funding for up to five years

System Access proposals should present the capabilities to be offered, including the suite of available instrumentation, the performance of the instruments, and the delivered image quality and site characteristics. No explanation of how the TSIP funds will be used is required.

Funding for System Access proposals will be provided in annual increments, contingent on the satisfactory experience of community observers, which will be evaluated on an annual basis by NOAO and reported to NSF.

### Aperture Ranges of Telescopes Eligible for TSIP Funding

Both System Improvement and System Access proposals will be accepted for telescopes of aperture 3 meters or greater. The total funding granted for telescopes in the range  $3.0\text{m} \leq D < 6.5\text{m}$  (including both System Improvement proposals and System Access proposals) will be limited to 25% of the total TSIP funding available.

Proposers for improvements or access on telescopes smaller than 6-m aperture should bear in mind that TSIP strives to *significantly* increase the power of the U.S. telescope System. Successful proposals for improvements or access to smaller telescopes will have demonstrated the potential to significantly enhance the scientific capabilities of that System or to provide community access to a highly desirable capability.

### Estimated FY05 Funding Levels

It is anticipated that approximately \$4.0 mil. in new funds will be available in FY 2005 for the TSIP program, plus \$1.75 mil. of uncommitted funds carried over from FY 2004. Note that total funds available for all proposals involving telescopes with aperture range  $3.0\text{-m} \leq D < 6.5\text{-m}$  is limited to 25% of available TSIP funding.

### Duration of Funding

*System Improvement* proposals for the design and construction of new, facility-class instruments for any telescope now in operation or under construction—including proposals for adaptive optics systems—may request up to five years (60 months) of funding. *System Access* proposals, which

propose to exchange public observing time for 100% of the TSIP funds awarded, may also propose funding for up to five years. System Improvement proposals to upgrade or enhance existing instrumentation, as well as System Improvement proposals that seek to upgrade current facilities or operations, are limited to one year (12 months) of TSIP support.

### Program Administration

TSIP is administered by the System Project Office (<http://www.noao.edu/system/>) of the National Optical Astronomy Observatory (NOAO) on behalf of the NSF Division of Astronomical Sciences. NOAO's role is limited to soliciting and processing proposals; organizing, coordinating, and providing support for the external peer review meetings, and—subject to NSF approval and the availability of funding—making awards, negotiating and executing agreements with sub-awardees, disbursing funds, and monitoring the progress of awarded projects. To eliminate conflicts of interest, NOAO employees are not eligible for funds under TSIP and are excluded from participation in proposal reviews.

TSIP awards are fixed price grants administered as sub-awards to sponsoring institutions from the NOAO Contracts Office. Disbursement of funds is typically divided into multiple stages. New instrument development sub-awards will have a minimum of two stages (AB and CD); these may be further subdivided during post-award negotiations. Payment will be made annually in advance for Phase AB. The funding profile for Phase CD will be negotiated at the time of Critical Design Review. Other Improvement and Access proposals will be funded annually, in advance, subject to satisfactory progress reviews.

### Eligibility Information

The TSIP program is open to all U.S. institutions having a mechanism for providing observing time on a telescope through the NOAO time allocation process. This includes U.S. institutions that operate such telescopes, as well as U.S. institutions that can provide assured access on U.S. or non-U.S. optical/IR telescopes. While NOAO is not eligible to propose to TSIP, in the case of consortium observatories in which NOAO holds less than a 51% interest (e.g., WIYN or SOAR), the non-NOAO partners, or the observatory itself, are free to submit proposals to TSIP—with a proportional reduction in the amount of Community Access time required, as described below in section III under *Proposed Community Access Time*.

### III. REQUIRED CONTENT OF TSIP PROPOSALS

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#### Proposed Community Access Time

All TSIP proposals must contain a description of the amount, scheduling, and nature of observing time to be made available to the U.S. community if the requested funding is awarded. System Improvement proposals that seek funding for new instrumentation will be considered based either upon current availability of observing time or upon anticipated availability of observing time at future dates. Other System Improvement proposals and all System Access proposals will be considered only for telescopes *already in operation* as of the first incremental funding date, so that observing time can be made available as soon as the proposed effort begins.

For System Access proposals, the value of the time offered must be equal to 100% of the TSIP funds awarded. For System Improvement proposals, the value must be equal to 50% of the TSIP funds awarded. An exception is made in the case of System Improvement proposals from consortia in which NOAO is a partner at 51% or less. In this case, the requisite community observing time (50% of the TSIP dollars awarded) may be reduced by NOAO's fractional ownership. For example, in a consortium that includes NOAO as a 30% partner (i.e., 30% of the science time on the telescope is available to the broad community through NOAO), the System Improvement proposer(s) would need to provide telescope time to the community equal to 35% (50% times 70%) of the TSIP funds received. (Telescope partnerships in which NOAO is a partner at a fraction greater than 50% are not eligible for TSIP; NOAO alone is ineligible for TSIP awards.)

The community observing time resulting from successful TSIP proposals will be allocated by NOAO through the same mechanisms of merit review used to evaluate observing proposals and allocate time on NOAO telescopes.

#### Valuation of Proposed Community Access Time

Each TSIP proposal must include a specific commitment of observing time on the telescope for which the instrument or improvement is being proposed. The dollar value of community observing time to be made available under the TSIP award must be defined and justified by an explicit calculation in the proposal narrative.

While the precise methods used to determine and justify the cost of the community access time on the proposer's telescope(s) are left to the sole discretion of the proposer, examples of acceptable valuations of these costs on the telescopes of previous TSIP awardees can be found on the NOAO System Web site: <http://www.noao.edu/system/tsip/> (Summary descriptions of the previous year's successful TSIP proposals and the proposers' costing of the observing time are published following the announcement of that year's awards.) The current page presents the accepted calculation of the cost of a night on one of the W.M. Keck telescopes resulting from the FY 2002 proposal cycle, the cost per night for the MMT and Magellan telescopes resulting from the FY 2003 proposal cycle, and the cost per night for the LBT resulting from the FY 2004 proposal cycle.

Proposers must specify in the proposal narrative any conditions they wish to impose on the community access they are offering. NOAO is willing to provide interface and support services for community access; the details of such arrangements can be negotiated following the successful review of a TSIP proposal. *Note particularly that it is not necessary that access be granted as individual observing runs.* An alternate possibility is to undertake a large survey or surveys, defined, at least in part, through community input, from which the data would be made publicly available.

### ***How to Estimate the Value of Nights for Telescopes < 6.5-Meters Aperture***

Because the existing telescopes < 6.5 meters in aperture are typically older, it is recognized that amortizing their original construction costs over 20 years following their completion may not be the most appropriate formula. We propose the following guideline for estimating the value of time on these older telescopes: *that their capital value is the current estimated cost to build a telescope of similar characteristics, reduced by a factor equal to inflation over the last ten years.* This capital value should still be amortized over a 20-year period. An example using this calculation can be found on the TSIP Web site (<http://www.noao.edu/system/tsip/>).

### **Project Management, Phasing, Staffing, Costing, and Science**

*System Improvement* proposals must present clear staffing and budgeting profiles and explicit schedules for development of the proposed instrument or upgrade. A management plan with well-defined milestones is essential. In particular, instrument proposals should be clearly divided into a concept and design phase (Phase AB), and a development and construction phase (Phase CD). Staffing and budgeting profiles for the two phases should be distinct. Proposals should contain full costs for both phases, and sources of uncertainty or needs for contingency should be clearly addressed.

These proposals should also contain a science justification explaining how the proposed instrument or improvement fits into the overall context of scientific capability needed by the entire U.S. astronomical community. Proposals may reference scientific priorities and needs as stated in various community studies or workshops. See, for example, the reports of the two community workshops on the Ground-based O/IR System: [http://www.noao.edu/gateway/oir\\_workshop/report.pdf](http://www.noao.edu/gateway/oir_workshop/report.pdf) and [http://www.noao.edu/meetings/system2/system2\\_report.pdf](http://www.noao.edu/meetings/system2/system2_report.pdf)

## IV. PROPOSAL PREPARATION AND SUBMISSION

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### Letters of Intent (Required)

Letters of Intent to propose to the TSIP are required. Letters of Intent may be submitted in electronic version, paper copy, or both. Acceptable formats for the electronic versions are plain ASCII text, MS Word, Adobe PDF, or PostScript formats. Letters of Intent will be individually acknowledged within 24 hours of receipt. If submitted electronically, they should be sent to [syspo@noao.edu](mailto:syspo@noao.edu). If submitted by mail or fax, send to:

Telescope System Instrumentation Program  
National Optical Astronomy Observatory  
P.O. Box 26732 – 950 N. Cherry Ave  
Tucson, AZ 85726-6732  
Tel: (520) 318-8000 Fax: (520) 318-8170

➤ The due date for Letters of Intent is December 1, 2004.

### Purpose and Content of Letters of Intent

The purpose of obtaining Letters of Intent is to assemble a peer review panel with no conflicts of interest and with expertise appropriate to the anticipated proposals.

Letters of Intent should include (a) designation of the proposal as either a System Improvement proposal or a System Access proposal, (b) names, institutions, and contact information of the PI and Co-I's, (c) general description of the instrument or improvement if a System Improvement proposal, (d) anticipated funding period in months, (e) anticipated cumulative funding requested (f) description of telescope facilities to which community access will be available if proposal is successful.

Questions about proposals, content, administration, and awards should be sent electronically to the System Project Office at [syspo@noao.edu](mailto:syspo@noao.edu). All questions will be given immediate attention; collected questions and answers (excluding confidential or proprietary content) deemed useful to other proposers will be posted on the TSIP FAQ Web page: <http://www.noao.edu/system/tsip/faq.html>

### Full Proposals (Electronic Submission Required)

Full proposals must be submitted electronically as a single PDF file containing all required sections, including the standard NSF budget page(s) and the Cover and Certification pages.

There are two ways to submit TSIP proposals electronically: (1) the electronic file can be sent as a PDF attachment to [syspo@noao.edu](mailto:syspo@noao.edu) or (2) the electronic file can be posted to a secure ftp site to be created for TSIP proposals. (The latter option is needed only if the proposal file is too big to be sent as an e-mail attachment.) In either case, proposals must be received by 5:00 P.M. (proposer's local time) on the date due.

The NSF budget pages, of which EXCEL templates are available from the System Project Office and the TSIP Web site, must also be submitted as PDF documents, *one budget page for each year of requested funding*, plus a cumulative budget page showing total funding requested (for multi-year proposals). Proposals will be individually acknowledged within 12 hours of receipt.

➤ The deadline for proposals is 5:00 P.M. (proposer's local time) February 25, 2005

## Required Sections and Documents for Full Proposals

### ➤ **Cover and Certification Pages**

The standard NSF Cover/Certification pages should be attached to the front of each proposal. A WORD version of the Cover page is on the TSIP Web site (<http://www.noao.edu/system/tsip/>) and is also available from the System Project Office ([syspo@noao.edu](mailto:syspo@noao.edu)). Signed copies of this document must be received by mail (or by fax to 520-318-8270) within five days of proposal submission. Electronic signature is also acceptable.

### ➤ **Proposal Narrative: System Improvement Proposals (Maximum 30 Pages)**

System Improvement proposals must contain five sections: (1) Science, (2) Technical, (3) Management, (4) Budget (including the NSF-style budget sheets described below), and (5) Community Access. The length of the proposal narrative without the Budget section may not exceed 30 pages. There are no page limitations on the Budget section.

1. The **Science** section describes the scientific capability that the proposed instrument or improvement provides or enables. *Proposers should explicitly state how the proposed development will improve or enhance the ground-based O/IR System.* Text in this section may refer to scientific motivations for particular capabilities derived from community meetings or workshops (e.g., The First Workshop on the Ground-Based O/IR System; see [http://www.noao.edu/gateway/oir\\_workshop/](http://www.noao.edu/gateway/oir_workshop/)). If the narrative does not refer to community-based efforts to identify needed capabilities, it should make the scientific case that the capability to be developed is as desirable as those that have been prioritized through such community-derived consensus. Specific scientific goals for the instrument or improvement and/or generally described studies that could be undertaken with community time may be described.

2. The **Technical** section should describe the technical approach that will be used in order to provide the proposed capability. The intent of this section is to convince the proposal review committee that the technical approach is viable and that the proposing team has the resources and expertise to carry it out. This section should include an overview of the instrument or improvement, including optics, mechanical design, electronics, and software. It should present a discussion of the technical issues or concerns, and strategies for addressing them. It should also describe the flow down from scientific goals to functional performance requirements, and should provide evidence that the proposed instrument will satisfy these requirements.

3. The **Management** section must describe the management approach to be used on the proposed project, including the following:

- Overall project structure and organization, including an organization chart
- Project risks and key challenges and strategies for addressing these
- Procedures and process to be used to manage the project, including, for example:

- Procedures to assign tasks and to control project personnel
  - Metrics to monitor and assess progress
  - Procedures and tools to plan and organize the project work
  - Plant and equipment
  - Personnel or subcontractors
  - Dependencies among aspects of development, design, or fabrication
  - Project management documentation that will be generated
- A Work Breakdown Structure (WBS) and schedule based on the WBS showing time line of major tasks, resource loading, task durations, and task costs built up to the overall project cost, including:
    - Dates of planned meetings and reviews and other critical milestones
    - Processes and procedures for quality assessment and control
    - Proposed mechanisms to facilitate NOAO oversight activities (See section on Award Administration and Program Oversight below.)

4. The **Budget** section should present the total cost of the instrument or improvement, and an annual payment schedule or funding profile for the TSIP funds requested. The payment schedule should be justified on the basis of the Work Breakdown Structure and planned commitments for large capital items. The budget should explicitly identify payroll, benefits, non-payroll, and agency-agreed overhead costs as they would be determined in a proposal to NSF. For instrument proposals, summary budgets should be given separately for phase AB and phase CD. Annual and summary budgets (for multi-year proposals) must be included in all proposals using the formats required for NSF proposals. A sample of the NSF-style budget form is attached to this Proposal Solicitation; EXCEL spreadsheet templates for these budgets are available on the TSIP Web site <http://www.noao.edu/system/tsip/> and from the System Project Office ([syspo@noao.edu](mailto:syspo@noao.edu)).

5. The **Capabilities/Community Access** section must detail the manner in which telescope time is to be made available, including the total number of nights and their distribution over time, any constraints on their use, the facilities to be made available, and so forth.

This section must include an explicit calculation of the value of observing time used to determine the nights to be made available to the community if the proposal is funded. This valuation should be calculated using such items as total construction cost, together with annual costs for operations and instruments. To provide accountability to the community, the explicit calculation and explanation of the value of nights provided for successful TSIP proposals will later be published on the System Web site: <http://www.noao.edu/system/tsip/>. For guidelines on how to value the cost of a night on telescopes < 6.5-m aperture, see above, Section III. *Required Content of TSIP Proposals*.

In addition, the Capabilities/Community Access section should include a comprehensive description of instruments available to visitors, services for visitors, data quality, data analysis capabilities, and any other factors that may affect the assessment of the value of observing time on a particular telescope. Proposals should state a clear schedule and any contingency planning for providing the allocated community observing time.

➤ **Proposal Narrative: System Access Proposals (Maximum 5 Pages)**

For System Access proposals, the narrative must contain two sections: (1) Capabilities/Community Access, and (2) Budget (including the NSF-style budget page(s)). The length of the proposal narrative without the budget section should not exceed five pages. There are no page limitations on the Budget section.

1. The **Capabilities/Community Access** section must detail the manner in which telescope time is to be made available, including the total number of nights and their distribution over time, constraints on their use, the facilities to be made available, services for visitors, and so forth. It must list the instruments to which access will be permitted, their performance characteristics, and their operating modes. Site characteristics, including typical clear and photometric fractions and seeing distribution, should also be noted, as well as any other factors that may affect the assessment of the value of observing time. Proposals should state a clear schedule and any contingency planning for providing the allocated community observing time.

This section must include an explicit calculation of the value of observing time used to determine the nights to be made available to the community if the proposal is funded. This value should be calculated using such items as total construction cost, together with annual costs for operations and instruments. To provide accountability to the community, the explicit calculation and explanation of the value of nights provided for successful TSIP proposals will be published on the System web site: For guidelines on how to value the cost of a night on telescopes < 6.5-m aperture, see above, Section III. *Required Content of TSIP Proposals.*

2. The **Budget** section should present the total funds requested, and an annual payment schedule or funding profile. A sample of the NSF-style budget form is attached to this Proposal Solicitation; EXCEL spreadsheet templates for these budgets are available from the TSIP Web site <http://www.naoa.edu/system/tsip/> and from the System Project Office ([syspo@naoa.edu](mailto:syspo@naoa.edu)).

**Formatting Guidelines for Full Proposals**

- **Page Limits:** Excluding the Budget section, the proposal narrative should not exceed 30 pages (Improvement proposals) or five pages (Access proposals). There is no limit on the number of pages for the Budget section.
- **Margins and Spacing:** Proposals should be single or double-spaced and formatted with margins of at least 1.0 inch at the top, bottom, right, and left sides of the page. Type size should not be smaller than 10 point, and tables and charts (especially Gantt charts) should be clear and easily legible in PDF form. Proposers are urged to proofread the PDF versions of their proposals before submission to check the legibility of tables, charts, and budget pages.
- **Budget Forms:** The standard NSF budget page (sample attached) is required. Each proposal must include a single budget page in this format for each year of support requested, as well as a cumulative budget page (for multi-year proposals only) showing the total funding requested over the full term of proposed TSIP support. Detailed descriptions of the budget categories required in

the NSF budget form can be found in the current NSF Grant Proposal Guide, section III.C.g: “Proposal Contents–Budget,” <http://www.nsf.gov/pubs/2003/nsf032/start.htm>

The budget forms must be submitted as *single-page* PDF documents included in the main proposal file. Budgets should be not submitted as separate EXCEL files or as EXCEL worksheets or workbooks.

- **Size of Submitted Electronic Files.** Proposers are urged to compress images, pictures, and other graphics such that the size of the PDF file can be successfully mailed electronically to the [syspo@noao.edu](mailto:syspo@noao.edu) address. All submissions will be acknowledged by the System Project Office within 12 hours of receipt; if your submission is not acknowledged, it is very likely that the file was too big to be transmitted successfully.

For files too large to be successfully transmitted as attachments to [syspo@noao.edu](mailto:syspo@noao.edu), a secure ftp site to which the file can be uploaded will be established.

### Questions About Proposal Preparation

Scientific, technical, and programmatic questions should be documented and sent to the System Project Office at [syspo@noao.edu](mailto:syspo@noao.edu). All questions will be answered promptly and those judged of interest to other proposers (excluding all proprietary or confidential information) will be published on the TSIP FAQ page: see for example: [http://www.noao.edu/system/tsip/2002\\_faq.html](http://www.noao.edu/system/tsip/2002_faq.html) Previous FAQ’s on TSIP proposals are also archived on this Web site.

### Program Contacts

Science/Technical .....	T. Boroson, NOAO, e-mail: <a href="mailto:tyb@noao.edu">tyb@noao.edu</a> or <a href="mailto:syspo@noao.edu">syspo@noao.edu</a>
Administration.....	D. Brouillette, NOAO, e-mail: <a href="mailto:diane@noao.edu">diane@noao.edu</a> or <a href="mailto:syspo@noao.edu">syspo@noao.edu</a>
Contracts .....	A. Commissaris, NOAO, e-mail: <a href="mailto:andy@noao.edu">andy@noao.edu</a>
System Project Office .....	<a href="http://www.noao.edu/system/">http://www.noao.edu/system/</a> E-mail: <a href="mailto:syspo@noao.edu">syspo@noao.edu</a>
TSIP Web Site .....	<a href="http://www.noao.edu/system/tsip/">http://www.noao.edu/system/tsip/</a>
TSIP FAQ .....	<a href="http://www.noao.edu/system/tsip/faq.html">http://www.noao.edu/system/tsip/faq.html</a>

## V. PROPOSAL REVIEW

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### TSIP Review Criteria

Review and ranking of all TSIP proposals is carried out by a peer review panel assembled by NOAO and approved by NSF. (NOAO staff are specifically excluded from the review panel.). This panel will meet in April 2005 to conduct their review. Comments will be returned to all proposers following the review panel meeting. The merit review criteria for TSIP proposals are the same as for all NSF proposals; there are additional review criteria specific to this program. The NSF merit review criteria are:

➤ ***What is the intellectual merit of the proposed activity?***

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

➤ ***What are the broader impacts of the proposed activity?***

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

➤ ***Additional review criteria specific to TSIP proposals:***

- Overall cost-effectiveness of the proposed effort
- Overall value of the proposed amount of time to the U.S. astronomical community
- Degree to which proposed effort reflects general improvement in the U.S. ground-based O/IR system. The context for judging such improvement rests on community strategic planning activities, but includes consideration of both long-term and short-term returns and of priorities not addressed by previous cycles of TSIP. An example of such an improvement that should be highlighted is the development of data reduction pipelines and data archives either as upgrades to existing instruments or as elements of new ones.
- Overall quality of the management and technical plans for accomplishing the effort
- Broader impacts of the proposed effort on, for example, the improvement of infrastructure for education through involvement of students in the proposed efforts, or the improvement of research infrastructure through the training of instrumentalists

Based on the review panel rankings and available funding, NOAO will request NSF approval of sub-awards to fund successful proposals.

### NOAO System Project Office Oversight

Following NSF approval of the recommendations made by the proposal review panel, the NOAO Contracts office will negotiate award contracts with the selected proposers. These contracts will include the following elements:

- Description of instrumental capability or improvement to be provided
- Timeline, including milestones and payments
- Telescope time to be provided, together with contingencies and limitations
- Management plan
- Reporting and review schedule

NOAO's role is to provide ongoing oversight of the progress of awarded projects. Listed below are some examples of project oversight activities in which NOAO is typically involved. NOAO makes every effort to accommodate its oversight activities to the awardee's established project management schedules, reviews, and reporting mechanisms.

#### ➤ **Approval of Management Plan**

The Technical Project Manager of the NOAO System Project Office will review and approve the management plan for the work. This is to ensure that sufficient project management is being provided by the proposing institution, that sufficient resources are identified to carry out the work, and that the budget and schedule are credible. An acceptable management plan is required before a sub-award can be recommended to NSF for approval.

#### ➤ **Regular Periodic Reports**

During the design and/or construction of instruments, the instrument PI or Project Manager will be required to submit monthly reports to keep the System Project Office informed of progress and problems. These reports will summarize work completed, equipment or parts purchased, issues identified, and progress relative to the accepted management plan. All reports and review results will be publicly available on the NOAO System Web site.

#### ➤ **Quarterly Reviews for Instrument Projects**

It is expected that instrument development projects will have formal management and will include regular reviews, typically every three months. These will be attended by the System Project Office Technical Project Manager and any associated technical personnel who might provide needed expertise. The review documentation and response to the review will be publicly available.

#### ➤ **Annual Status Reports**

At each annual TSIP review meeting, the panel will review the ongoing TSIP-funded projects in addition to new proposals. These reports, which must be submitted to the System Project Office by each proposal deadline, will describe work completed in the past year, work planned for the next year, progress relative to the original proposal, and problems encountered.

➤ **Formal Decision on Continuation of Funding Following CDR**

Following the Critical Design Review at the end of Phase AB, a formal decision on continuation of TSIP funding through Phase CD is required. If the project is maintaining the cost and schedule in the original proposal within contingency, continuation will be automatic, subject to availability of NSF funds for TSIP. If there are projected cost overruns or schedule slips, the NOAO System Project Office will convene a panel to evaluate the project in context of other existing or proposed TSIP projects and determine if the project should be continued with a revised cost and schedule. A revised sub-award would require NSF approval.

➤ **Review of Progress on Non-Instrument System Improvement Proposals**

It is expected that infrastructure improvement projects will also have regular reviews, typically every six months, similar in nature to the quarterly reviews for instrument projects. Review materials and reports will be publicly available. The generic criteria to be used in evaluation are successful completion of the work according to the original plan and the improvement in performance of the facility described in the technical proposal. If improvements are not being made as proposed, the NOAO System Project Office will convene a review panel to evaluate the project in context of other existing or proposed TSIP projects and determine whether the project should be continued. A revised sub-award would require NSF approval.

➤ **Review of Progress on System Access Proposals**

It is expected that observatories that are providing observing time to the community in return for funding received through a TSIP System Access proposal will make available to the NOAO System Project Office all feedback from community observers concerning the success of their observing runs or the problems encountered. In the case of multi-year awards, an annual report will be required, due at the annual TSIP proposal cycle deadline, summarizing community use of the facility. This report will be reviewed by the TSIP review panel for continuation into the next year.



**NSF PROPOSAL COVER SHEET AND CERTIFICATION PAGE\***  
**For Proposals to the Telescope System Instrumentation Program (TSIP)**



PROGRAM ANNOUNCEMENT		
<i>Proposal Solicitation FY05 Telescope System Instrumentation Program: <a href="http://www.noao.edu/system/tsip/">http://www.noao.edu/system/tsip/</a></i>		
TITLE OF PROPOSED PROJECT		
NAME OF ORGANIZATION TO WHICH SUB-AWARD SHOULD BE MADE	ADDRESS OF SUB-AWARDEE ORGANIZATION	
NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE	ADDRESS OF PERFORMING ORGANIZATION	
REQUESTED \$ AMOUNT	PROPOSED DURATION (1-60 Months)	REQUESTED STARTING DATE
NAME OF PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR FOR THIS SUB-AWARD		PI/PD Electronic Mail Address

**CHECK IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW:**

- |   |   |
|---|---|
| <input type="checkbox"/> BEGINNING INVESTIGATOR (GPG II.A)                        | <input type="checkbox"/> HUMAN SUBJECTS   |
| <input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES                        |   |
| <input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION (GPG 1.B, II.C.1.D) | <input type="checkbox"/> INTERNATIONAL COOPERATIVE ACTIVITIES   |
| <input type="checkbox"/> HISTORIC PLACES  | <input type="checkbox"/> SMALL GRANT FOR EXPLOR. RESEARCH (SGER)  |
| <input type="checkbox"/> VERTEBRATE ANIMALS                                       | <input type="checkbox"/> HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.E.1) |

PRINCIPAL INVESTIGATOR POSTAL ADDRESS	PI Tel. and Fax Number
---------------------------------------	------------------------

**Certification for Authorized Institutional Representative or Individual Applicant:**

By signing this certification and submitting this proposal, the individual applicant or the authorized official of the applicant institution is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this proposal application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, and lobbying activities (see below), as set forth in the National Science Foundation Grant Proposal Guide (GPG), NSF 03-041. Willful provision of false information in this proposal application and its supporting documents, or in reports required under an ensuing award is a criminal offense (U.S. code, Title 18, Section 1001).

In addition, if the applicant institution employs more than fifty persons, the authorized official of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with National Science Foundation Grant Policy Manual Section 510; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to AURA.

**NSF PROPOSAL COVER SHEET AND CERTIFICATION PAGE\***  
**For Proposals to the Telescope System Instrumentation Program (TSIP)**



**Drug Free Work Place Certification**

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Appendix C of the NSF Grant Proposal Guide.

**Debarment and Suspensions Certification** (If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by and Federal department or agency?  Yes  No

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Debarment and Suspension Certification contained in Appendix D of the NSF Grant Proposal Guide

**Certification Regarding Lobbying**

This certification is required for an award of a Federal contract, grant or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

**Certification for Contract, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U. S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

<b>AUTHORIZED ORGANIZATIONAL REPRESENTATIVE</b>		<b>SIGNATURE</b>	<b>DATE</b>
<b>NAME</b>			
<b>ORGANIZATIONAL REPRESENTATIVE TEL:</b>	<b>ELECTRONIC MAIL ADDRESS</b>	<b>Fax Number</b>	

*\*Attach a PDF copy of this file as the cover to your TSIP proposal. A signed hard copy must be received by NOAO within five days of submitting your proposal. Mail or fax to:*

**A. Commissaris, Contracts Officer**  
**National Optical Astronomy Observatory**  
**P.O. Box 26732 – 950 N. Cherry Ave.**  
**Tucson, AZ 85726-6732**  
**Fax: (520) 318-8270**

**TSIP BUDGET – YEAR 1 of \_\_\_\_\_**

FOR NOAO USE ONLY		
PROPOSAL NO.	DURATION (MONTHS)	
	Proposed	Granted
AWARD NO.		

ORGANIZATION NAME				PROPOSAL NO.		DURATION (MONTHS)		
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR				AWARD NO.		Proposed	Granted	
A. SENIOR PERSONNEL: PI/PI, Co-PIs, Faculty and Other Senior Associates List each separately with name and title. (A.7. Show number in brackets)				NOAO-Funded Person-months			Funds Requested By Proposer	Funds Granted (If Different)
				CAL	ACAD	SUMR		\$
1.								
2.								
3.								
4.								
5.								
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)								
7. ( ) TOTAL SENIOR PERSONNEL (1-6)								
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)								
1. ( ) POSTDOCTORAL ASSOCIATES								
2. ( ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)								
3. ( ) GRADUATE STUDENTS								
4. ( ) UNDERGRADUATE STUDENTS								
5. ( ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)								
6. ( ) OTHER								
TOTAL SALARIES AND WAGES (A + B)								
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)								
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)								
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)								
TOTAL EQUIPMENT								
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)								
2. FOREIGN								
F. PARTICIPANT SUPPORT								
1. STIPENDS \$ _____								
2. TRAVEL _____								
3. SUBSISTENCE _____								
4. OTHER _____								
TOTAL NUMBER OF PARTICIPANTS ( )				TOTAL PARTICIPANT COSTS				
G. OTHER DIRECT COSTS								
1. MATERIALS AND SUPPLIES								
2. PUBLICATION/DOCUMENTATION/DISSEMINATION								
3. CONSULTANT SERVICES								
4. COMPUTER SERVICES								
5. SUBAWARDS								
6. OTHER								
TOTAL OTHER DIRECT COSTS								
H. TOTAL DIRECT COSTS (A THROUGH G)								
I. INDIRECT COSTS (F&A) (SPECIFY RATE AND BASE)								
TOTAL INDIRECT COSTS (F&A)								
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)								
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECT SEE GPG II.D.7.j.)								
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)						\$	\$	
M. COST SHARING: PROPOSED LEVEL \$				AGREED LEVEL IF DIFFERENT: \$				
PI/PD TYPED NAME				DATE		FOR NOAO USE ONLY		
ORG. REP. TYPED NAME				DATE		INDIRECT COST RATE VERIFICATION		
						Date Checked	Date of Rate Sheet	
						Initials-ORG		