



**Award Specific - Programmatic Terms and Conditions (PTCs) for the Management and Operation of the Green Bank Observatory (GBO) – NSF Cooperative Agreement AST-1928936 – Continued**

**E. Education and Outreach Plan**

Consistent with proposal AST-1928936, the Awardee will articulate and conduct a vigorous, coherent program of education, public outreach, and community development activities that utilizes the knowledge and discoveries made at GBO and that strengthens education and public awareness of radio astronomy and related engineering and technology. To promote and support these activities, the Awardee will establish and develop strategic alliances with appropriate local, national, and international organizations to build on existing programs, institutions, and infrastructure and to develop innovative approaches to increase GBO's educational and media impact. The Awardee will promote opportunities across GBO for effective and inclusive educational experiences, such as mentored student involvement in GBO research and development activities, an engaging public outreach and visitor program, and professional development programs for educators in K-12, undergraduate, and graduate education. The Awardee will be responsible to develop and implement an innovative, integrated program of research and education that builds on GBO's scientific and organizational strengths to advance NSF strategic goals.

Specific Duties - the Awardee will:

- (a) Integrate research and education through a strategic, expert-led program of education and public outreach that leverages and emphasizes the unique contributions of GBO and that is incorporated fully into GBO planning and operations.
- (b) Develop organizational partnerships to enhance the design, impact, and reach of GBO education and outreach activities.
- (c) Identify and meet the needs of researchers and educators in contributing to improving teaching and learning in pre-college, undergraduate, graduate, and postdoctoral education.
- (d) Work with NSF in a cooperative effort to inform the public about GBO facilities, programs, and accomplishments through press releases and other public media and announcements.
- (e) Actively support the NSF strategic goal of cultivating a world-class, broadly inclusive science and engineering workforce, and expanding the scientific literacy of all citizens.

## 2.10. Quality Objectives

In performing specific duties in support of the GBO mission, the Awardee will be required to demonstrate performance in the following areas:

- (a) Implementation of an effective planning process.
- (b) Development and use of effective performance measures.
- (c) Development of scientific leadership to provide enhanced scientific support to the GBO Director, including coordination of efforts and new initiatives with the scientific community, and defining the scientific direction of GBO.
- (d) Effective workforce management, including: recruitment and development of highly qualified scientific, technical, and administrative staff; succession planning for anticipated retirements of key personnel; and appropriate consideration of diversity, such as the representation of women and underrepresented groups.
- (e) Modernization of data archives, including science-ready data products, as well as data pipelines and processing tools for ready community access.
- (f) Instrument development efforts in line with scientific goals and community priorities, as well as viable plans to transition instruments under development to facility instruments.
- (g) Continued efforts to seek and develop appropriate partnerships to increase the funding base for GBO.
- (h) Efforts to ensure that funding secured from other federal agencies is of benefit to GBO and the community.

## 2.11. Planning and Reporting Requirements

The Awardee shall provide annual management reports and quarterly and annual reports for all GBO programs, inclusive of all associated support functions and development laboratories, as well as reports required by CA AST-1928936 and all other reports as may be required by NSF. Under the Government Performance and Results Act (GPRA), NSF is required to report on the Federal Performance Goals for Facilities. Any and all facilities with an annual budget exceeding a specific threshold must report on their operations activities; and any and all construction/upgrade projects that exceed a total project cost of a specific threshold must report on their construction/upgrade activities. Therefore, the Awardee will be required, upon request of the cognizant NSF Program Officer, to submit annual reports related to the GPRA performance goals. This may include the collection and submission of specific data related to the NSF GPRA requirements.

- (a) Annual AUI Management Report (AMR). The Awardee shall submit an Annual AUI Management Report that describes its performance, separate from that of the facility, against the expectations and statement of work and including performance measures as proposed. This report will be considered as the Annual Report in Research.gov, and the NSF Program Officer's approval of this report will be required prior to issuance of scheduled funding for the next fiscal year.
- (b) Strategic Plan. The awardee shall submit a Strategic Plan by November 1, 2019; thereafter only when modified. The Strategic Plan will describe the vision, goals, and objectives for GBO during the period of the cooperative agreement and in the longer term.
- (c) Program Operating Plan (POP). The Awardee shall submit an annual Program Operating Plan for NSF review for each upcoming fiscal year. The POP shall describe the principal activities to be undertaken during the year and include milestones, objectives, targets, deliverables, financial and staffing plans, maintenance plans, key decision points, and anticipated risks and mitigation plans. The POP will serve as a baseline for assessing variances between planned and actual activities and for identifying and managing emerging risks and opportunities.
- (d) Long Range Plan (LRP). The Awardee shall submit annually a Long Range Plan that describes the principal activities to be undertaken during the five-year period subsequent to the POP, in order to support the objectives of the Strategic Plan. The LRP will be based on budget guidance provided by NSF.
- (e) Annual Program Report (APR). An Annual Program Report for the prior fiscal year shall be submitted for NSF review after the end of each fiscal year. The report shall describe progress against the POP based on milestones, objectives, targets, and deliverables. The report will highlight scientific, technical, and other achievements; describe notable decisions and outcomes; provide financial data, including program income and spending; and present metrics of time allocation, telescope usage, data management, and publications, as well as other performance measures as proposed. Progress on infrastructure maintenance and renewal shall be discussed. Significant variances between planned and actual activities and outcomes shall be described.
- (f) Quarterly Status Reports (QSRs). Quarterly Status Reports should summarize interim progress during the preceding quarter against the POP and highlight scientific achievements, significant variances between the planned and actual activities, risks and proposed mitigation plans, and ongoing metrics as identified for the APR. The QSRs will be in the form of briefings to NSF with the written material from the briefings submitted through Research.gov. The briefings should be held approximately 45 days after the end of a quarter.
- (g) Schedule of Plans and Reports

The plans and reports described above shall be submitted according to the following schedule:

- Annual AUI Management Report, 1 July; as Annual Report to Research.gov.
- Strategic Plan, 1 November 2019; thereafter only when modified; as interim report to Research.gov.
- Program Operating Plan, 1 October; as interim report to Research.gov. The proposal AST-1928936 is accepted as the Program Operating Plan for FY 2020.
- Long Range Plan, 1 October; as interim report to Research.gov. The proposal AST-1928936 is accepted as the Long Range Plan for FY 2020.
- Annual Program Report, 1 December; as interim report to Research.gov
- Quarterly Status Report, approximately 45 days after end of quarter; as interim report to Research.gov.
- Final Program Report - within 120 days after the expiration date of the CA; as a final report to Research.gov.
- Final Outcomes Report - within 120 days after the expiration date of the CA; as an outcomes report to Research.gov.