

Public Information and Outreach Project Execution Plan

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C-PIO-005

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Change Log

The purpose of this log is to update the material and to improve the clarity and legibility of the Project Execution Plan. A summary of the changes for this revision is given below. Footers within each section of this document indicate the last revision date of the content in that section, while all page headers in the document include the date and NSF number of the current version of the Major Facilities Guide.

1. Inserted Change Log as new material to reflect edited sections, moved material, deleted material and updated material.
2. Section 2.1 - PIO Management structure - replaced with revised structure.
3. Section 3.2.1 - Replace budget table with budget summary.
4. Section 3.2.2 - Deleted table, information shown in gantt chart.
5. Section 3.2.3 - Deleted table information shown in gantt chart.
6. Section 4.2 - WBS replaced with WBS table.
7. Section 4.3 - Inserted WBS dictionary.
8. Section 4.4.1 - Inserted Scope Boundary Conditions from scope management plan added Scope Details heading.
9. Section 4.5 and 4.6 - Added link.
10. Section 4.8 - Changed to Baseline Schedule Estimating Plan.
11. Section 4.9 - Inserted Milestone and Product Plan gantt chart.
12. Section 4.10 - Inserted Project Tolerances from Project Plan.
13. Section 4.11 - Schedule Contingency Statement.
14. Section 5.1 - Inserted content from Staffing Plan
15. Section 5.2 - Inserted content from Staffing Plan
16. Section 6.1 - Revised content from Risk Management Plan.
17. Section 6.2 - Revised content and added revised risk register as appendix.
18. Section 7 - Removed section references, not applicable.
19. Section 10.1 - Revised content.
20. Section 11 - Site and Environment section removed as not applicable.
21. Section 13 - Review and Reporting content revised.
22. Section 15 and Section 18 - Removed as not applicable.

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List of Acronyms

Acronym	Definition
AAS	American Astronomical Society
AURA	Association of Universities for Research in Astronomy
CAS	Central Administrative Service
CTIO	Cerro Tololo International Observatory
CSA	Cooperative Support Agreement
GEMMA	Gemini in the Era of Multi-Messenger Astronomy
LIGO	Laser Interferometer Gravitational-Wave Observatory
LSST	Large Synoptic Survey Telescope
MMA	Multi-Messenger Astronomy
MTCS	MMA-TDA Communications Summit
MTMW	MMA-TDA Media Workshop
NSF	National Science Foundation
PIO	Public Information & Outreach
TDA	Time Domain Astronomy

1 Introduction

1.1 Scientific Objectives

The Public Information & Outreach (PIO) elements of the Gemini Observatory in the Era of Multi-Messenger Astronomy (GEMMA) program will deliver products designed to communicate the concepts of Multi-Messenger Astronomy (MMA) and Time Domain Astronomy (TDA) in an accessible manner while conveying the thrill of scientific discovery to lay audiences. Gemini scientific staff are included (with salary commitments) in the plan and will carefully review all publicly distributed materials as part of this project's procedures to assure compliance and scientific accuracy and quality assurance.

1.2 Scientific Requirements

All communications and educational activities and results from the GEMMA PIO project will meet the highest standards for scientific accuracy while engaging internal and external scientific participants at many levels. Public accessibility and scientific accuracy are the two equally important overarching requirements in the Development and Execution of the project plan.

1.3 Facility/Infrastructure

Office space for interns is required, as well as computer hardware and software. Use of facility infrastructure is available for meetings, video conferencing, interviews etc.

1.4 Scientific & Broader Societal Impacts

This PIO component of the GEMMA award addresses the aspect of broader societal impact in a multi-faceted manner. The key requirement of GEMMA's broader impact is to convey the concepts of multi-messenger and time-domain astronomy and the role of Gemini and other facilities in this new astronomical discovery space. Ultimately, the story told is of a new era in astronomical exploration – enabled by cutting edge technologies, instrumentation and methodologies supported largely by National Science Foundation (NSF) funding.

Broader impacts in this award are organized into two domains: Professional Workshops/Summit and educational resources.

Professional Workshops/Summit:

A pivotal workshop supported by this award is actually better described as a summit. This MMA-TDA Communications Summit (MTCS) will convene scientists, communications and education professionals to work together over a period of two days with the goal of developing a roadmap for effectively communicating the concepts of MMA & TDA to non-scientists. The Summit will target participants who are leaders from major NSF-funded MMA & TDA facilities such as Gemini, LSST, LIGO. The event is planned for 2 days at a central location, likely Space Telescope Science Institute (STScI) and is nominally scheduled for early November of 2019.

Informed by the aforementioned MTCS, a half-day MMA-TDA Media Workshop (MTMW) for journalists is planned and will likely be held in conjunction with the January 2021 meeting of the American Astronomical Society (AAS) in Phoenix. During this workshop up to eight invited scientists will share their ideas and insights on MMA & TDA and provide journalists with story leads and contacts for future coverage of MMA & TDA events.

Media training workshops (one each in Hawai'i and Chile) for staff will follow later in 2021. The goal of this training will be to better prepare AURA staff for interactions with the media and learn more effective ways of presenting MMA & TDA and related technologies with journalists and the public.

Educational Resources:

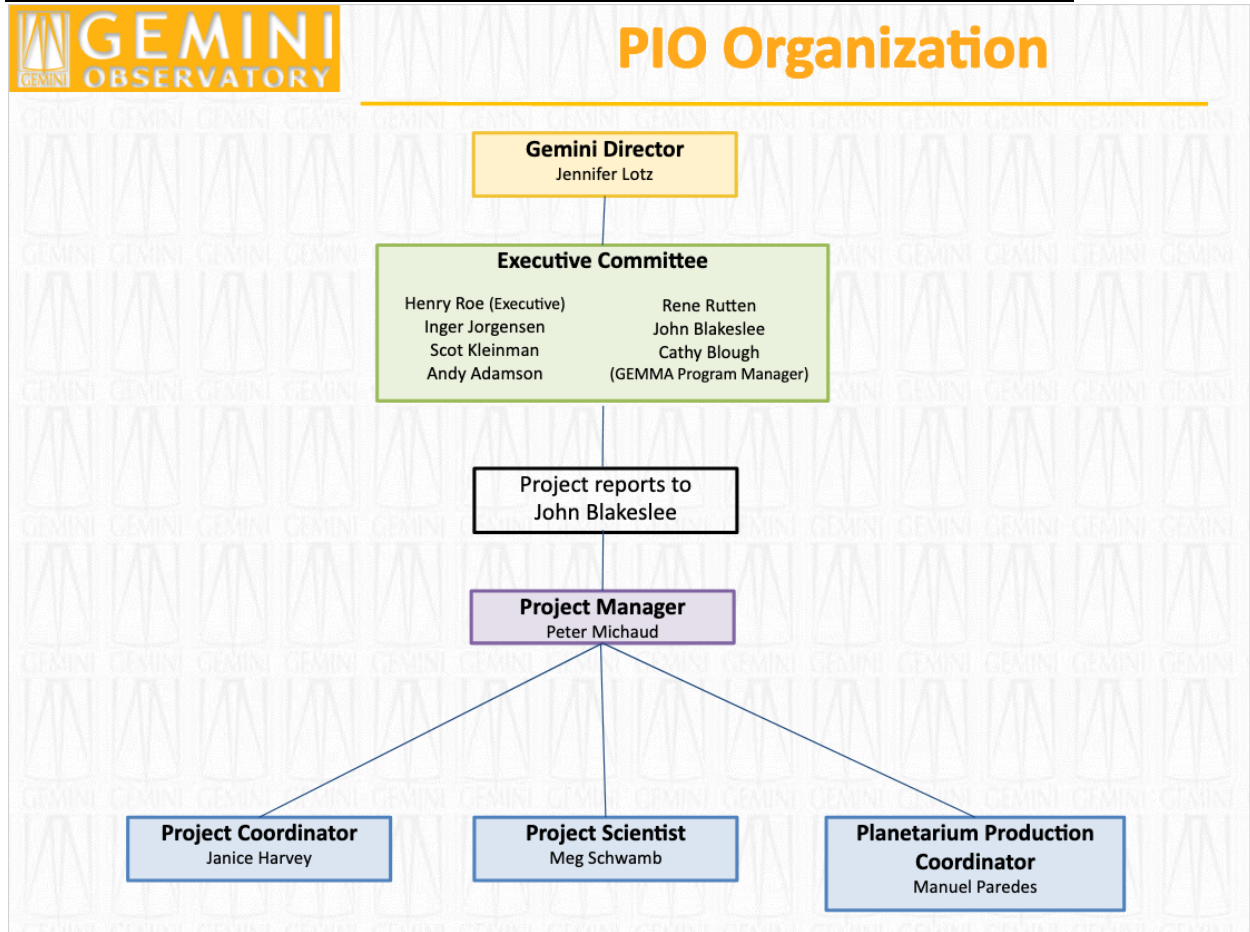
Presenting MMA and TDA concepts to educators, K-12 and university students is a key goal of this award's broader impact. To that end, the production of full-dome, video-based, planetarium program content is planned. Discussions with planetarium educators reveal a dearth of quality programming for small, and portable, planetaria which target K-12 students and universities. This award provides funding for the production of planetarium program content focusing on the era of MMA & TDA and the new discovery space these fields present. Partnerships are also being explored which will leverage this program with existing efforts such as the NSF-funded BIG-Act planetarium production featuring the science and people of observatories in Chile (including Gemini, LSST and CTIO).

Finally, materials for K-12 and university classrooms on MMA & TDA constitute another key element of this award. Central to the development of these materials are the proposed four 6-month full-time internship opportunities for education students at the undergraduate level. It is envisioned that each intern will develop and test a minimum of one activity and demonstrate a lesson during their internship period. We have kept it open-ended so each intern can develop a unique idea with guidance from PIO staff. Examples include a deformable mirror demonstration, videos on time domain observations and the multi-messenger follow-up process, or even an adaptation of the educational Gemini observing card game to include TDA and MMA.

It is expected that these will run consecutively from the second half of FY 2019 through 2021 and result in classroom tested resources. Integration into existing Gemini outreach programming possibly the annual *Journey Through the Universe* will be a critical element of the development of these educational resources. Ultimately these materials will be made available to classrooms around the world using "open-source" translations by educators.

2 Organization

2.1 Internal Governance & Organization and Communication



PIO project management structure

- John Blakeslee: Project Sponsor
 - Secure necessary resources
 - Provide scientific review of plans/content
 - Monitor progress of GEMMA PIO subprojects
 - Assess quality of deliverables
- Peter Michaud: Project Manager
 - Lead internal and external team-members to accomplish goals of GEMMA PIO programming
 - Oversee all elements in GEMMA PIO and track for schedule and quality
 - Monitor and address issues regarding resource availability
 - Serve as primary contact for team members and some external participants
 - Monitor budget and use of resources including staff
 - Provide reports and status updates as required
 - Work with team to ensure that all required documents are current
 - Lead communications with team and outside stakeholders

- Janice Harvey: Project Coordinator
 - Support Project Manager in development of required documents
 - Provide logistical support for implementation of workshops, summit and educational programming
 - Assist in communications to internal and external stakeholders
 - Oversee interns (including providing HR with documents for hiring) and work with PM to develop appropriate activities for interns to pursue
 - Support contract development as necessary
- Manuel Paredes: Planetarium Production Coordinator
 - Initiate partners/contractors in program production
 - Oversee script and visuals development with input from PM
 - Coordinate contract development for program production
 - Provide status reports as necessary
 - Coordinate communications with contractors/partners
- Scientific Advisor
 - Review and provide input on workshops/summit program and scientific goals
 - Engage in planning for workshops/summit and direct scientific content
 - Provide input/recommendations on workshop/summit invited science participants
 - Participate actively in workshops/summit events
 - Engage with interns in determining appropriate projects
 - Review project's distributed materials (planetarium program, educational materials etc.) for scientific accuracy and relevance
- Interns:
 - Will be based at Gemini North in Hilo
 - Develop and test educational content and materials for formal and informal science education environments
 - Assist in other duties related to the success of GEMMA PIO programming
 - Initiate new projects based on perceived needs which support GEMMA PIO programming
 - Existing PIO staff at Gemini North will work as mentors with interns on specific project(s) to be selected by each intern.

The Executive Committee, led by the Deputy Director is responsible for successful delivery of the GEMMA Program's objectives and benefits and will resolve conflicts, resource and otherwise. In all cases the Executive Committee will be consulted on major project decisions that have significant external impacts, such as design choices that impact future development options, major procurements, or major changes in deliverables by the projects.

The Executive Committee will seek consensus decisions, but the Executive has final authority on decisions when consensus cannot be expeditiously found. The Executive Committee serves as the Risk Advisory Board for the GEMMA Program. The Executive Committee will delegate day-to-day Project Sponsorship to John Blakeslee, escalating issues as needed to the full Executive Committee.

2.2 External Organization and Communication

Please refer to the link for the [External Organization and Communication](#).

2.3 Partnerships

Throughout the implementation of the GEMMA PIO programming there are multiple instances where partnerships are necessary for success. Each major project element is listed below with key partnerships envisioned.

MTCS: This summit would be most appropriate at a venue such STScI headquarters in Baltimore and will require an agreement for the use of this venue. In addition, up to 20 external participants will be asked to participate as “partners” (with travel provided from the award) with flexible terms of commitment.

MTMW: This workshop will likely be held in conjunction with the January 2021 AAS meeting in Phoenix, AZ and it is expected that the AAS will be a partner in this event based on discussions with the AAS Press Officer. Additionally, speakers at the workshop will be considered “partners” and are expected to volunteer to participate (although travel is available as necessary for speakers).

MMA/TDA Planetarium Programming Modules: The development of these program elements are expected to engage partners from the professional planetarium community to advise on content and production techniques. Other partnerships are also possible to provide adaptations of existing content such as the NSF-funded BIG-Act planetarium program (slated for release in 2020).

Internships and Educational Resources Development: As interns develop educational materials for the GEMMA PIO project, it is anticipated that they will partner with Gemini Observatory’s extensive “Journey Through the Universe” educational network in Hawai‘i. This will provide opportunities for educators and students to test and evaluate the effectiveness of materials.

2.4 Roles and Responsibilities

Please refer to the link for [organization roles and responsibilities](#).

2.5 Community Relations and Outreach

The MMA/TDA Internships: These four, 6-month full-time internships will provide a remarkable opportunity for students to experience MMA/TDA in a real observatory environment and share what they learn with students through activities and other educational materials, which may include social media and other deliverables such as video streaming. The interns will serve as community “ambassadors” through online portals and other community educational approaches.

3 Design and Development

3.1 Project Development Plan

The five primary GEMMA PIO sub-projects are divided into two categories: Professional Workshops/Summit, and Educational Resources. There are interdependencies within all five of

these projects with the MMA-TDA Communications Summit (MTCS) significantly informing all of the remaining four projects. Because much of the success of the remaining four elements of the GEMMA PIO work is at least partially dependent upon the results from the MTCS, time is of the essence in completing the MTCS. Descriptions of each of the five subprojects' plans and milestones follow:

MTCS: To realize the objectives of the MTCS in a timely manner, the following sequence of events and milestones must occur (see WBS for additional details):

- Development of draft MTCS key objectives, outcomes, possible participants and venue options: early-January 2019
- Venue confirmed and Summit dates set: May 2019
- Participants list developed and invitations sent: June 2019
- Summit Facilitator contract developed, facilitator selected: July 2019
- Final list of participants confirmed, travel arrangements for participants completed: September 2019
- Program development completed with facilitator: October 2019
- Venue logistics, program and document printing, dining/catering, etc. completed: October 2019
- Summit executed: November 2019
- Develop MTCS final report, including results and recommendations (December 2019)

MTMW: To realize the objectives of the MTMW, the following sequence of events and milestones must occur (see WBS for additional details):

- Draft development of MTMW key objectives, outcomes and venue options: May 2020
- Select science presenters: August 2020
- Promotion to media through AAS mailing, social media etc. and sign-up list created: August - December 2020
- Program finalized: December 2020
- Workshop executed: early January 2021 (nominally at 2021 AAS meeting in Phoenix)

Staff Media Training: To realize the objectives of the Staff Media Training the following sequence of events and milestones must occur (see WBS for additional details):

- Development of Media Training objectives, outcomes, scope and venues of training: February 2021
- Selection of Media Trainer(s) completed: June 2021
- Selection of staff participants (Gemini and other AURA centers): July-September 2021
- Target execution of training: October/November 2021

MMA/TDA Planetarium Programming: To realize the objectives of the MMA/TDA Planetarium Program development the following sequence of events and milestones must occur (see WBS for additional details):

- Research production/distribution partnerships and contractors: August 2019 - February 2020
- Issue call for proposals/bids to potential production contractor(s) and select contractor: April - June 2020

- Program production: July 2020 - September 2021
- Promotion and digital distribution of program: November 2021

MMA/TDA Internships: To realize the objectives of the MMA/TDA Interns the following sequence of events and milestones must occur (see WBS for additional details):

- Create MMA-TDA Intern job description and HR paperwork: April 2019
- Advertise first internship position: May 2019
- Select first intern position: August 2019
- Begin first internship: September 2019
- Repeat above every six months for a total of 4 iterations, ending 2021

3.2 Development Budget and Funding Sources

The budget for this project is 3.80 FTE plus \$345,048 in travel and other direct costs.

3.3 Development Schedule

The schedule of this project is November 2018 to December 2021.

4 Construction Project Definition Scope Statement

4.1 Summary of Total Project Definition

The GEMMA PIO project is aimed at improving communications with, and public/student understanding of, MMA and TDA. Using the methodologies listed in section 2.2, these programs will promote the effective communication of MMA and TDA to student and public audiences through workshops and summits, staff training and K-12 educational materials.

4.2 Work Breakdown Structure (WBS) Product or Service Goals & Objectives

WBS #	WBS Milestones and Tasks	Deliverable
<u>1.5</u>	<u>GEMMA PUBLIC INFORMATION AND OUTREACH</u>	
1.5.1	Project Support	Smooth project coordination and NSF required reporting
1.5.2	MMA-TDA Communications Summit (MTCS)	Science/Communications Summit Proceedings
1.5.2.1	Venue selection	MTCS venue and date confirmed

1.5.2.2	Development of MTCS key objectives and outcomes	Working collaborative document
1.5.2.3	Attendees selection and confirmation	Detailed list of attendees finalized
1.5.2.4	Attendees Logistics	Attendees Itineraries confirmed and booked
1.5.2.5	Facilitator recruitment	Summit Facilitator hired
1.5.2.6	MTCS Material and Content development	MTCS program defined
1.5.2.7	MTCS event facility logistics	Summit facility set up
1.5.2.8	MTCS Execution	MTCS successfully executed and fully attended Summit summary and notes
1.5.2.9	MTCS Culmination Dinner	Celebratory dinner with all summit attendees
1.5.2.10	MTCS close-out	Final Report and Proceedings
1.5.3	MMA-TDA Media Workshop (MTMW)	Media Workshop Event Summary
1.5.3.1	MTMW key objectives, outcomes	MTMW Program Proposal
1.5.3.2	Submit 2021 AAS MTMW proposal and receive acceptance	Receive AAS 2021 acceptance
1.5.3.3	MTMW Facility rental agreement	Agreement signed
1.5.3.4	Workshop presenters selection and confirmation	Detailed list of presenters confirmed
1.5.3.5	MTMW presenters and staff logistics	Attendees Itineraries confirmed and booked
1.5.3.6	MTMW content preparation and promotion	Promotional materials and communication efforts

1.5.3.7	Finalize MTMW Agenda	Agenda ready for distribution
1.5.3.8	Workshop execution	Workshop successfully executed, well attended and recorded
1.5.4	Staff Media Training	Staff Training Event and Evaluation
1.5.4.1	Training objectives, outcomes, and scope	Training Plan
1.5.4.2	Media trainers selection and confirmation (Hawaii/Chile), including training dates	Trainers hired, dates confirmed
1.5.4.3	Trainer Logistics	Completed travel/accommodations documents
1.5.4.4	Training attendees selection and confirmation (Gemini/AURA centers)	Final list of staff attendees
1.5.4.5	Training content/focus definition	Final outline of workshop plan
1.5.4.6	GN training execution	Recording of session
1.5.4.7	GS training execution	Recordings of session
1.5.5	MMA/TDA Planetarium Programming	Completed Program Module(s)
1.5.5.1	Research potential production partners and contractors	List of possible production contractors
1.5.5.2	Develop scope of work and program content outlines	Written scope and outline
1.5.5.3	Call for proposals/bids for production contract	Call for proposals/bids document finalized and issued to possible contractors
1.5.5.4	Contractor selection and confirmation	Signed contract
1.5.5.5	Planetarium Storyboard collaboration and Program definition	Storyboards reviewed and approved
1.5.5.6	Acceptance of final segments	Final full-dome video segments delivered
1.5.5.7	Adaptation of Web version of segments	Delivery of web version of segments

1.5.5.8	Promotion of materials to planetarium community	Press release and e-mail distribution
1.5.6	MMA/TDA Internships	Four completed internships with completed and tested projects
1.5.6.1	Initiate necessary HR paperwork for MMA-TDA internships	Job description created and request to hire forms submitted
<u>1.5.6.2</u>	<u>Intern #1 hired and internship execution</u>	<u>Educational Product #1</u>
1.5.6.2.1	Intern #1 recruitment	Intern #1 hired
1.5.6.2.2	Internship #1 orientation	Identify primary project(s) for intern
1.5.6.2.3	Internship #1 management and mentoring	Support intern's professional development and benefit from their performance
1.5.6.2.4	Internship #1 completion	Internship completion report and presentation
<u>1.5.6.3</u>	<u>Intern #2 recruitment and internship execution</u>	<u>Educational Product #2</u>
1.5.6.3.1	Intern #2 recruitment	Intern #2 hired
1.5.6.3.2	Internship #2 orientation	Identify primary project(s) for intern
1.5.6.3.3	Internship #2 management and mentoring	Support intern's professional development and benefit from their performance
1.5.6.3.4	Internship #2 completion	Internship completion report and presentation
<u>1.5.6.4</u>	<u>Intern #3 recruitment and internship execution</u>	<u>Educational Product #3</u>
1.5.6.4.1	Intern #3 recruitment	Intern #3 hired
1.5.6.4.2	Internship #3 orientation	Identify primary project(s) for intern
1.5.6.4.3	Internship #3 management and mentoring	Support intern's professional development and benefit from their performance
1.5.6.4.4	Internship #3 completion	Internship completion report and presentation

1.5.6.5	<u>Intern #4 recruitment and internship execution</u>	<u>Educational Product #4</u>
1.5.6.5.1	Intern #4 recruitment	Intern #4 hired
1.5.6.5.2	Internship #4 orientation	Identify primary project(s) for intern
1.5.6.5.3	Internship #4 management and mentoring	Support intern's professional development and benefit from their performance
1.5.6.5.4	Internship #4 completion	Internship completion report and presentation

4.3 Work Breakdown Structure Dictionary

WBS #	WBS Milestones and Tasks	Description of work
<u>1.5</u>	<u>GEMMA PUBLIC INFORMATION AND OUTREACH</u>	
1.5.1	Project Support	Meetings, discussions, work sessions, reporting, and tracking related to the overall GEMMA PIO work package
1.5.2	MMA-TDA Communications Summit (MTCS)	
1.5.2.1	Venue selection	Define venue characteristics, gather venue options, contact venue representatives and receive feedback. Upon receiving of venue representative feedback, discuss with project management team and make a decision based on best fit
1.5.2.2	Development of MTCS key objectives and outcomes	Utilizing previous experience on communication events, and feedback from potential attendees, group creativity techniques, and collaborative work, prepare MTCS plan, that clearly states the objectives of the event, the expected outcomes and how we plan to achieve them.
1.5.2.3	Attendees selection and confirmation	Develop initial attendee's "wish-list" and contact them to discuss interest, availability and input on Summit content and results (phone/video) Prepare and send invitations Confirm attendance and finalize the list of attendees
1.5.2.4	Attendees Logistics	Once the list of attendees is finalized, including travel details, submit a travel request, and follow-up with the travel coordinator. Distribute each individual itinerary to the confirmed attendees. Provide assistance and respond attendees inquiries related to the

		event
1.5.2.5	Facilitator recruitment	Research qualified Summit Facilitators and make a selection of 3 possible candidates (will you ask for quotes from 3 facilitators, will you have 3 facilitators?) Initiate contract process with CAS and follow-up until contract with facilitator is signed.
1.5.2.6	MTCS Material and Content development	Program development with facilitator. Finalization of program with facilitator
1.5.2.7	MTCS event facility logistics	Periodic coordination meetings to define what needs to be in place for the summit execution. Define an MTCS preparation plan and systematically check and work on completing listed preparation tasks. This work includes, and is not limited to, material logistics, catering, and event services.
1.5.2.8	MTCS Execution	Final preparations for meeting at venue, coordination of meeting event (two days), Gemini staff travel to meeting and logistical support at meeting venue.
1.5.2.9	MTCS Culmination Dinner	Find a location and coordinate dinner to mark the culmination of the MTCS
1.5.2.10	MTCS close-out	Gather all attendees and facilitators feedback, MTCS Team notes, plus all MTCS documentation produced for the project and write a summary report according to the Gemini's Project Management Knowledge Base Methodology.
1.5.3	MMA-TDA Media Workshop (MTMW)	
1.5.3.1	MTMW key objectives, outcomes	Capture MTMW key objectives and outcomes in a digital working document with input from communications colleagues and scientific staff.
1.5.3.2	Submit 2021 AAS MTMW proposal and receive acceptance	Submit proposal for MTMW to AAS press office based upon guidance from AAS staff, answer questions from AAS and await acceptance.
1.5.3.3	MTMW Facility rental agreement	Work with AAS venue hotel to secure appropriate room for MTMW as well as refreshments and AV support.
1.5.3.4	Workshop presenters selection and confirmation	Develop workshop presenters "wish-list" and contact them to discuss interest, availability and input on content and results (phone/video) Confirm workshop presenters and topics
1.5.3.5	MTMW presenters and staff logistics	Once the list of attendees is finalized, including travel details, submit a travel request, and follow-up with the travel coordinator. Distribute each individual itinerary to the confirmed attendees. Provide assistance and respond attendees inquiries related to the event

1.5.3.6	MTMW content preparation and promotion	Work with presenters on content to be presented at MTMW to ensure alignment with key objectives and outcomes set for the workshop. Promote workshop to media with press release and e-mail correspondence
1.5.3.7	Finalize MTMW Agenda	Finalize agenda for MTMW, coordinate with presenters, produce printed agenda for distribution at workshop.
1.5.3.8	Workshop execution	Implement workshop agenda, coordinate communications with presenters, check in participants, manage delivery of venue resources (AV, food and beverage)
1.5.4	Staff Media Training	
1.5.4.1	Training objectives, outcomes, and scope	Develop written document that defines the objectives, outcomes and scope of the workshop which will be used in selecting contracted media trainer(s).
1.5.4.2	Media trainers selection and confirmation (Hawaii/Chile), including training dates	Research for ideal trainers and prepare a "wish-list", contact them to discuss interest, availability and input on content and results (phone/video). Based on feedback confirm workshop presenters and topics, proceed with CAS contracts for Hawaii and Chile media trainers. Dates set on events calendar, rooms reserved
1.5.4.3	Trainer Logistics	Once the list of trainers is finalized, including travel details, submit a travel request, and follow-up with the travel coordinator. Distribute each individual itinerary to the confirmed trainers. Provide assistance and respond trainers inquiries related to the event
1.5.4.4	Training attendees selection and confirmation (Gemini/AURA centers)	Select appropriate staff to participate in training and coordinate their availability. Where necessary work with staff managers to secure availability of staff. Identify non-Gemini staff to participate as space allows.
1.5.4.5	Training content/focus definition	Work with contracted trainer to develop written outline of workshop to match objectives and outcomes.
1.5.4.6	GN training execution	Coordinate on-site workshops, including room preparations, technology, refreshments and supplies needed by trainer.
1.5.4.7	GS training execution	Coordinate on-site workshops, including room preparations, technology, refreshments and supplies needed by trainer.
1.5.5	MMA/TDA Planetarium Programming	
1.5.5.1	Research potential production partners and contractors	Research potential contractors for production of planetarium program modules - evaluate past work of potential contractors and ability to complete the scope and content needs of program.
1.5.5.2	Develop scope of work and program content outlines	Develop a scope of the planetarium program modules and rough storylines in a written document that considers input from MMA/TDA scientists, educators and observatory operations staff.

1.5.5.3	Call for proposals/bids for production contract	Distribute solicitation of production contractors for program modules, answer inquiries from potential bidders and summarize final submissions for evaluation and selection (next step).
1.5.5.4	Contractor selection and confirmation	Create an evaluation committee to select production contractor, develop criteria for selection and finalize and notify selection of contractor.
1.5.5.5	Planetarium Storyboard collaboration and Program definition	Storyboard iterations, produce script, review and approve scripts - Production review meeting (travel for PM and MP) Program segment draft cuts reviewed at contractor's site with visit of GEMMA PIO manager and planetarium program production manager Production status/modification notes Target audience assessment via video or possible presentations at 'Imiloa Astronomy Center Production modifications implemented based upon draft program review
1.5.5.6	Acceptance of final segments	GEMMA PIO manager and planetarium production manager to visit production contractor's facility for final acceptance of production
1.5.5.7	Adaptation of Web version of segments	Convert program modules for web-delivery and viewing
1.5.5.8	Promotion of materials to planetarium community	Initiate communications with membership of the International Planetarium Society on program availability and web video availability.
1.5.6	MMA/TDA Internships	
1.5.6.1	Initiate necessary HR paperwork for MMA-TDA internships	Confirm with the HR department the requirements for internship hires. Create Job Descriptions and provide to HR with a salary estimate and include length and times of internships
<u>1.5.6.2</u>	<u>Intern #1 hired and internship execution</u>	
1.5.6.2.1	Intern #1 recruitment	Advertise first internship position until deadline, assemble intern hiring committee and conduct interviews of intern candidates. Select top candidate, make offer (receive confirmation), and coordinate logistics (office, computers etc.)
1.5.6.2.2	Internship #1 orientation	During the first month of internship the PM and PC will interact and guide the student to develop an Educational Product project that they will execute and deliver by the end of their internship
1.5.6.2.3	Internship #1 management and mentoring	Motivate intern to participate in regular PIO team meetings as part of the team. Regular supervisor and mentoring activities to ensure good progress
1.5.6.2.4	Internship #1 completion	Preparation of an internship report, review and approval. Presentation of the internship deliverable
<u>1.5.6.3</u>	<u>Intern #2 recruitment and internship</u>	

	<u>execution</u>	
1.5.6.3 .1	Intern #2 recruitment	Advertise second internship position until deadline, assemble intern hiring committee and conduct interviews of intern candidates. Select top candidate, make offer (receive confirmation), and coordinate logistics (office, computers etc.)
1.5.6.3 .2	Internship #2 orientation	During the first month of internship the PM and PC will interact and guide the student to develop an Educational Product project that they will execute and deliver by the end of their internship
1.5.6.3 .3	Internship #2 management and mentoring	Motivate intern to participate in regular PIO team meetings as part of the team. Regular supervisor and mentoring activities to ensure good progress
1.5.6.3 .4	Internship #2 completion	Preparation of an internship report, review and approval. Presentation of the internship deliverable
1.5.6.4	<u>Intern #3 recruitment and internship execution</u>	
1.5.6.4 .1	Intern #3 recruitment	Advertise third internship position until deadline, assemble intern hiring committee and conduct interviews of intern candidates. Select top candidate, make offer (receive confirmation), and coordinate logistics (office, computers etc.)
1.5.6.4 .2	Internship #3 orientation	During the first month of internship the PM and PC will interact and guide the student to develop an Educational Product project that they will execute and deliver by the end of their internship
1.5.6.4 .3	Internship #3 management and mentoring	Motivate intern to participate in regular PIO team meetings as part of the team. Regular supervisor and mentoring activities to ensure good progress
1.5.6.4 .4	Internship #3 completion	Preparation of an internship report, review and approval. Presentation of the internship deliverable
1.5.6.5	<u>Intern #4 recruitment and internship execution</u>	
1.5.6.5 .1	Intern #4 recruitment	Advertise fourth internship position until deadline, assemble intern hiring committee and conduct interviews of intern candidates. Select top candidate, make offer (receive confirmation), and coordinate logistics (office, computers etc.)
1.5.6.5 .2	Internship #4 orientation	During the first month of internship the PM and PC will interact and guide the student to develop an Educational Product project that they will execute and deliver by the end of their internship
1.5.6.5 .3	Internship #4 management and mentoring	Motivate intern to participate in regular PIO team meetings as part of the team. Regular supervisor and mentoring activities to ensure good progress

1.5.6.5 .4	Internship #4 completion	Preparation of an internship report, review and approval. Presentation of the internship deliverable
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4.4 Scope Management Plan

4.4.1 Scope Boundary Conditions

1. Workshops, summit and training will be limited to the funding available to support travel to the selected venues. When possible, venues will be selected based and ease/cost of travel or jointly with other meetings to encourage efficiencies.
2. MMA-TDA planetarium program will need to interface with existing video-based portable planetaria and utilize existing resources whenever possible.
3. Interns will be required to relocate to the Gemini Observatory Hilo Base Facility to interact with observatory staff.

4.4.2 Scope Details

<i>In Scope</i>	<i>Out of Scope</i>
MMA-TDA Planetarium Program	Traveling Planetarium

4.5 Cost Estimating Plan, Cost Reports and Baseline Budget

The cost estimating plan can be found at <https://www.gemini.edu/gemma/documents>

4.6 Complexity Factor

Please refer to the link for the Cost Estimating Plan which describes the Complexity Factor. <https://www.gemini.edu/gemma/documents>

4.7 Baseline Funding Profile

Labor

WBS #	WBS Milestones and Tasks	FY19	FY20	FY21	FY22	Total
5	GEMMA PUBLIC INFORMATION AND OUTREACH	\$71,777	\$126,076	\$125,402	\$11,967	\$335,224
5.1	Project Management	\$15,513.00	\$17,030.40	\$12,277.84	\$3,069.46	\$47,890.70

5.2	MMA-TDA Communications Summit (MTCS)					\$ -
5.2.1	Venue selection	\$2,666.91				\$2,666.91
5.2.2	Development of MTCS key objectives and outcomes	\$4,569.80				\$4,569.80
5.2.3	Attendees selection and confirmation	\$7,240.29				\$7,240.29
5.2.4	Attendees Logistics	\$2,722.79	\$1,555.88			\$4,278.67
5.2.5	Facilitator recruitment	\$5,935.57				\$5,935.57
5.2.6	MTCS Material and Content development	\$8,912.90	\$4,456.45			\$13,369.35
5.2.7	MTCS event facility logistics	\$11,475.41	\$4,003.05			\$15,478.46
5.2.8	MTCS Execution		\$8,686.20			\$8,686.20
5.2.9	MTCS Culmination Dinner		\$533.74			\$533.74
5.2.10	MTCS close-out		\$4,936.10			\$4,936.10
5.3	MMA-TDA Media Workshop (MTMW)					
5.3.1	MTMW key objectives, outcomes		\$2,703.50			\$2,703.50
5.3.2	Submit 2021 AAS MTMW proposal and receive acceptance		\$411.64			\$411.64
5.3.3	MTMW Facility rental agreement			\$1,083.19		\$1,083.19
5.3.4	Workshop presenters selection and confirmation		\$6,514.65			\$6,514.65
5.3.5	MTMW presenters and staff logistics			\$3,303.66		\$3,303.66
5.3.6	MTMW content preparation and promotion		\$775.32	\$1,162.98		\$1,938.30
5.3.7	Finalize MTMW Agenda			\$3,332.60		\$3,332.60
5.3.8	Workshop execution			\$5,790.80		\$5,790.80
5.4	Staff Media Training					
5.4.1	Training objectives, outcomes, and scope			\$1,203.50		\$1,203.50

5.4.2	Media trainers selection and confirmation (Hawaii/Chile), including training dates			\$3,730.92		\$3,730.92
5.4.3	Trainer Logistics			\$966.30		\$966.30
5.4.4	Training attendees selection and confirmation (Gemini/AURA centers)			\$1,834.92		\$1,834.92
5.4.5	Training content/focus definition			\$2,748.86		\$2,748.86
5.4.6	GN training execution				\$1,067.48	\$1,067.48
5.4.7	GS training execution				\$736.06	\$736.06
5.5	MMA/TDA Planetarium Programming					
5.5.1	Research potential production partners and contractors	\$1,060.90	\$2,345.49			\$3,406.39
5.5.2	Develop scope of work and program content outlines		\$4,467.28			\$4,467.28
5.5.3	Call for proposals/bids for production contract		\$1,737.20			\$1,737.20
5.5.4	Contractor selection and confirmation		\$1,284.59			\$1,284.59
5.5.5	Planetarium Storyboard collaboration and Program definition		\$7,214.92	\$22,802.48		\$30,017.40
5.5.6	Acceptance of final segments			\$5,569.18		\$5,569.18
5.5.7	Adaptation of Web version of segments			\$1,411.76	\$83.02	\$1,494.78
5.5.8	Promotion of materials to planetarium community			\$1,888.96	\$108.14	\$1,997.10
5.6	MMA/TDA Internships					
5.6.1	Initiate necessary HR paperwork for MMA-TDA internships	\$1,029.10				\$1,029.10
5.6.2	Intern #1 hired and internship execution					
5.6.2.1	Intern #1 recruitment process	\$2,202.97				\$2,202.97
5.6.2.2	Internship #1 orientation	\$4,705.56	\$369.72			\$5,075.28

5.6.2.3	Internship #1 management and mentoring	\$3,742.57	\$18,846.62			\$22,589.19
5.6.2.4	Internship #1 completion		\$2,665.75			\$2,665.75
5.6.3	Intern #2 hired and internship execution					
5.6.3.1	Intern #2 recruitment process		\$2,058.20			\$2,058.20
5.6.3.2	Internship #2 orientation		\$6,330.64			\$6,330.64
5.6.3.3	Internship #2 management and mentoring		\$22,409.19			\$22,409.19
5.6.3.4	Internship #2 completion		\$2,598.45			\$2,598.45
5.6.4	Intern #3 hired and internship execution					
5.6.4.1	Intern #3 recruitment process		\$2,141.92	\$144.77		\$2,286.69
5.6.4.2	Internship #3 orientation			\$4,977.10		\$4,977.10
5.6.4.3	Internship #3 management and mentoring			\$23,260.49		\$23,260.49
5.6.4.4	Internship #3 completion			\$2,755.45		\$2,755.45
5.6.5	Intern #4 hired and internship execution					
5.6.5.1	Intern #4 recruitment process			\$2,202.97		\$2,202.97
5.6.5.2	Internship #4 orientation			\$4,820.10		\$4,820.10
5.6.5.3	Internship #4 management and mentoring			\$18,133.90	\$4,304.94	\$22,438.84
5.6.5.4	Internship #4 completion				\$2,598.45	\$2,598.45

Non-labor

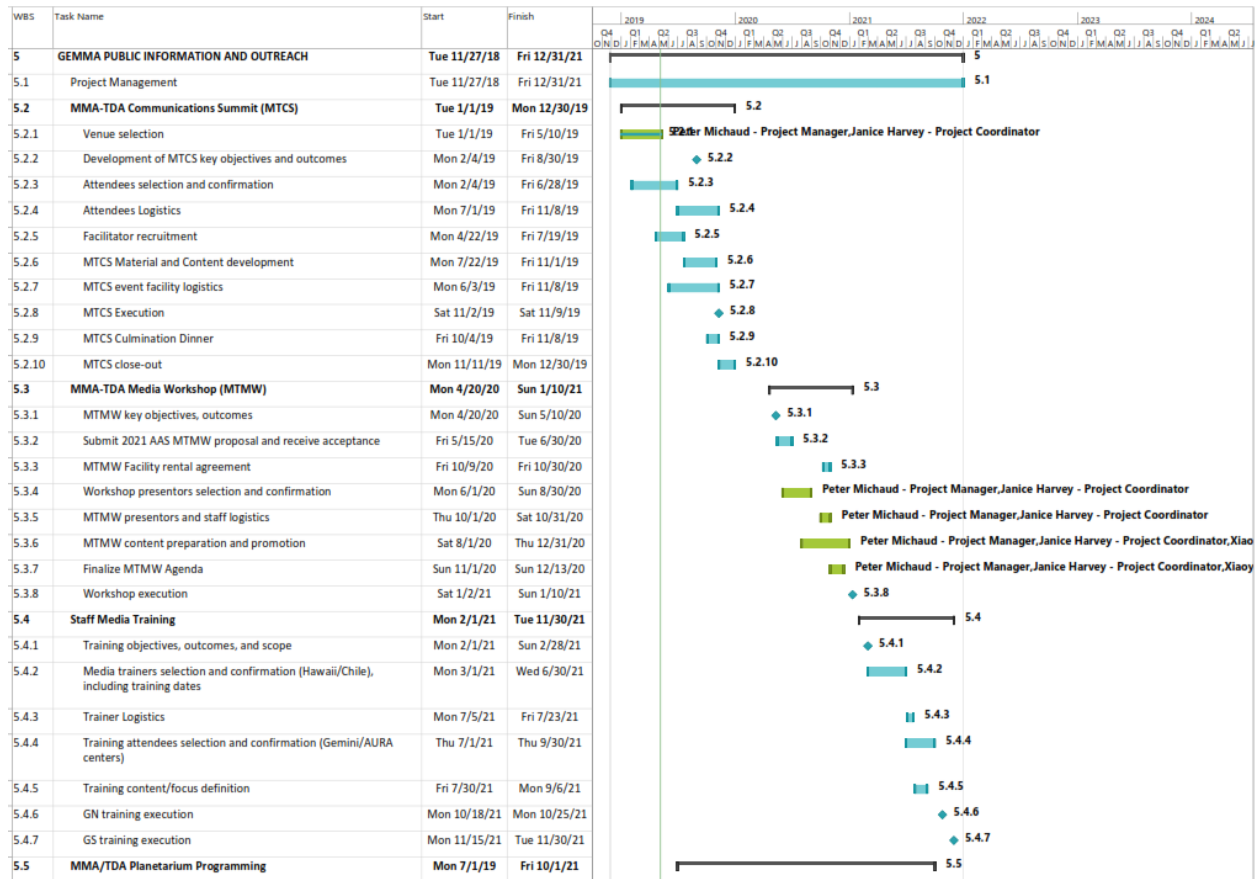
WBS #	WBS Milestones and Tasks	FY19	FY20	FY21	FY22	Total
5	GEMMA PUBLIC INFORMATION AND OUTREACH	\$89,201	\$237,097	\$17,250	\$1,500	\$345,048
5.1	Project Management					
5.2	MMA-TDA Communications Summit (MTCS)					

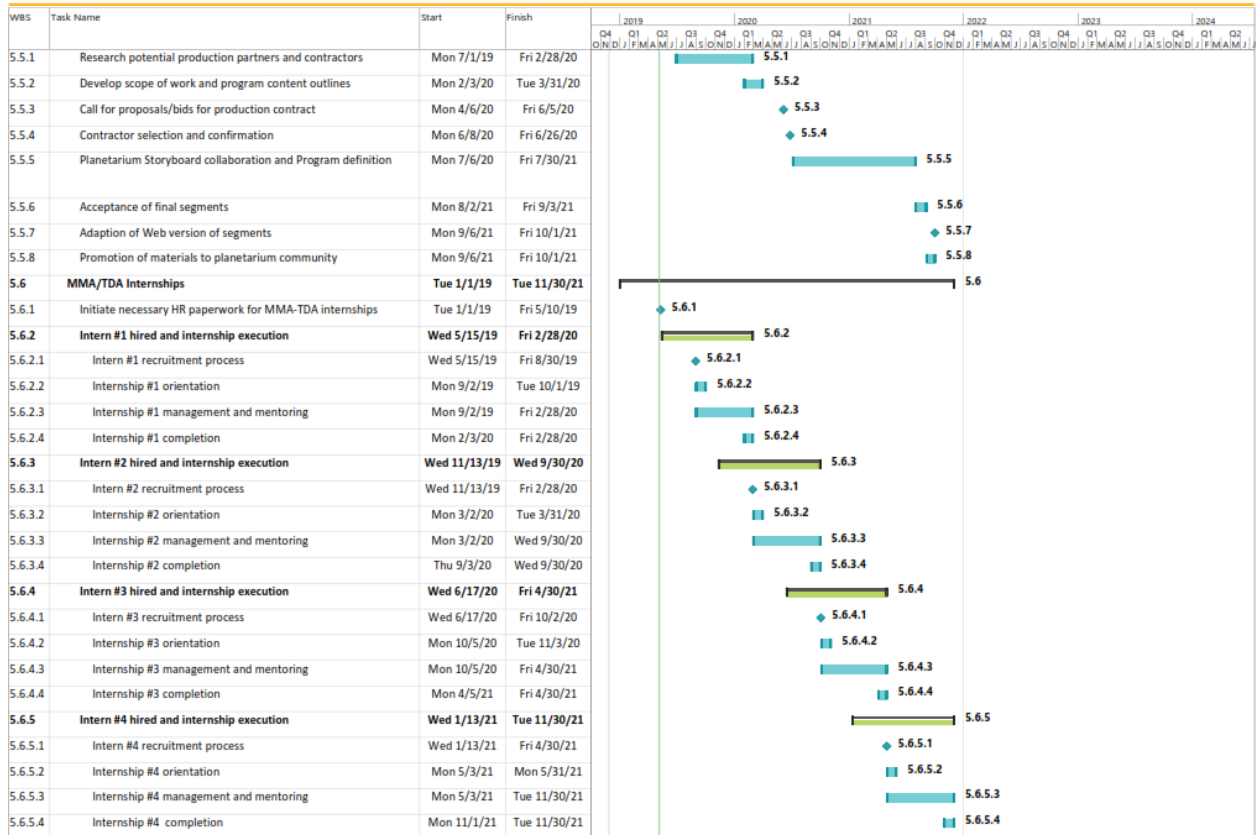
5.2.1	Venue selection					
5.2.2	Development of MTCS key objectives and outcomes					
5.2.3	Attendees selection and confirmation					
5.2.4	Attendees Logistics	\$68,701.23				\$68,701.23
5.2.5	Facilitator recruitment	\$12,000.00				\$12,000.00
5.2.6	MTCS Material and Content development					
5.2.7	MTCS event facility logistics	\$5,000.00				\$5,000.00
5.2.8	MTCS Execution					
5.2.9	MTCS Culmination Dinner	\$2,000.00				\$2,000.00
5.2.10	MTCS close-out					
5.3	MMA-TDA Media Workshop (MTMW)					
5.3.1	MTMW key objectives, outcomes					
5.3.2	Submit 2021 AAS MTMW proposal and receive acceptance					
5.3.3	MTMW Facility rental agreement		\$2,500.00			\$2,500.00
5.3.4	Workshop presenters selection and confirmation					
5.3.5	MTMW presenters and staff logistics		\$14,430.59			\$14,430.59
5.3.6	MTMW content preparation and promotion					
5.3.7	Finalize MTMW Agenda					
5.3.8	Workshop execution					
5.4	Staff Media Training					
5.4.1	Training objectives, outcomes, and scope					
5.4.2	Media trainers selection and confirmation (Hawaii/Chile), including training dates			\$12,000.00		\$12,000.00
5.4.3	Trainer Logistics			\$2,250.20		\$2,250.20

5.4.4	Training attendees selection and confirmation (Gemini/AURA centers)					
5.4.5	Training content/focus definition					
5.4.6	GN training execution					
5.4.7	GS training execution					
5.5	MMA/TDA Planetarium Programming					
5.5.1	Research potential production partners and contractors					
5.5.2	Develop scope of work and program content outlines					
5.5.3	Call for proposals/bids for production contract					
5.5.4	Contractor selection and confirmation		\$205,000.00			\$205,000.00
5.5.5	Planetarium Storyboard collaboration and Program definition		\$4,583.40			\$4,583.40
5.5.6	Acceptance of final segments		\$4,583.40			\$4,583.40
5.5.7	Adaptation of Web version of segments					
5.5.8	Promotion of materials to planetarium community					
5.6	MMA/TDA Internships					
5.6.1	Initiate necessary HR paperwork for MMA-TDA internships					
5.6.2	Intern #1 hired and internship execution					
5.6.2.1	Intern #1 recruitment process					
5.6.2.2	Internship #1 orientation					
5.6.2.3	Internship #1 management and mentoring	\$1,500.00	\$1,500.00			\$3,000.00
5.6.2.4	Internship #1 completion					
5.6.3	Intern #2 hired and internship execution					

5.6.3.1	Intern #2 recruitment process					
5.6.3.2	Internship #2 orientation					
5.6.3.3	Internship #2 management and mentoring		\$3,000.00			\$3,000.00
5.6.3.4	Internship #2 completion					
5.6.4	Intern #3 hired and internship execution					
5.6.4.1	Intern #3 recruitment process					
5.6.4.2	Internship #3 orientation					
5.6.4.3	Internship #3 management and mentoring		\$1,500.00	\$1,500.00		\$3,000.00
5.6.4.4	Internship #3 completion					
5.6.5	Intern #4 hired and internship execution					
5.6.5.1	Intern #4 recruitment process					
5.6.5.2	Internship #4 orientation					
5.6.5.3	Internship #4 management and mentoring			\$1,500.00	\$1,500.00	\$3,000.00
5.6.5.4	Internship #4 completion					

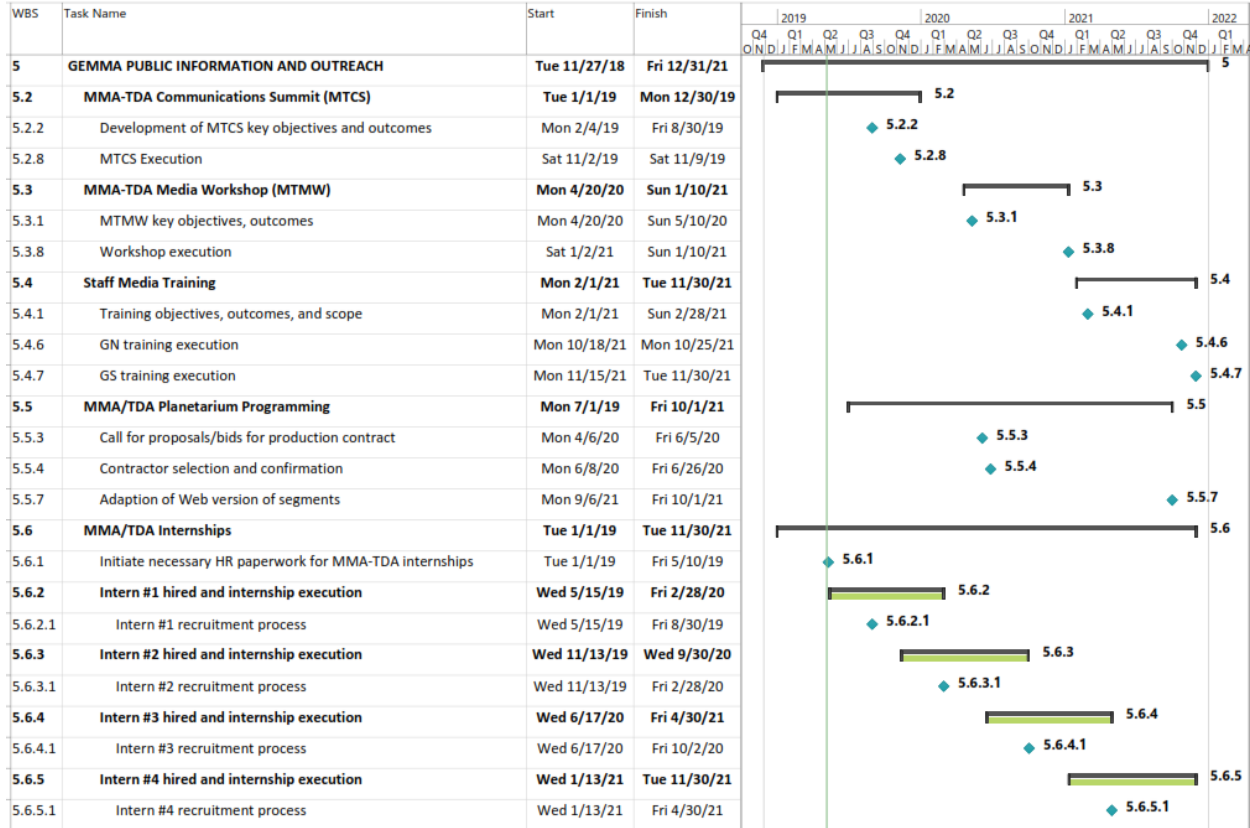
4.8 Baseline Schedule Estimating Plan and Integrated Schedule





4.9 Milestone/Product Plan

The following are the top level project milestones in the project in calendar years.



4.10 Project Tolerances

FY 2019	Baseline Value	Tolerance	Escalation/Approval Process
Resource			
Project manager	1 FTE	+/-0.2	J. Blakeslee
Prog. Coordinator/Admin.	1 FTE	+/-0.2	J Blakeslee
Other staff	0.5 FTE	+/-0.2	J Blakeslee

Schedule	Varied - See WBS schedule	+/- 60 days	J Blakeslee Executive Committee
Cost	\$679,764	>/<20%	J Blakeslee Executive Committee
Scope	Total milestones and deliverables 100% completed	>/<20% variation of deliverable for MTDC Staff Media Training Planetarium Programming MMA/TDA Internships	J Blakeslee Executive Committee
Risk	ID major risk for each project as resource availability	Aggregate impact of the individual projects on the overall GEMMA PIO success	J Blakeslee Executive Committee

Whenever the tolerance for one of these baseline values is exceeded (or expected to be exceeded), the Sponsor will be alerted of the exception.

4.11 Schedule Contingency

The schedule in this project is fixed and therefore contingency will be managed by scope adjustments. Initial scope is described in section 4.4 above.

5 Staffing

5.1 Staffing Plan

Name - Role	FY19	FY20	FY21	FY22	Total
Alyssa Grace - PIO Support		0.02	0.01	0.01	0.04
Intern #1	0.14	0.36			0.50
Intern #2		0.50			0.50
Intern #3			0.50		0.50
Intern #4			0.40	0.10	0.50
Janice Harvey - Project Coordinator	0.24	0.24	0.21	0.02	0.71
Joy Pollard - PIO Support	0.00	0.01			0.02
Manuel Paredes - PIO Support	0.00	0.08	0.22	0.01	0.31
Peter Michaud - Project Manager	0.18	0.24	0.20	0.01	0.63

Project Scientist	0.01	0.03	0.03	0.01	0.08
Xiaoyu Zhang - PIO Support		0.00	0.01		0.01
TOTAL by Quarter	0.58	1.48	1.57	0.16	3.80

The PIO elements of the GEMMA award consist of multiple programs with each consisting of variations on the common goal of improving (and realizing innovations) in the communication and teaching of MMA and TDA to students and the public. To accomplish this we will utilize approximately 2.0 FTE of existing staff skills and expertise to coordinate workshops and a summit, establish a contract to produce planetarium resources, and hire 2.0 FTE intern positions (four positions at 0.5 FTE) over the course of the program (2.75 years, interns starting in mid-2019).

Existing staff have been identified who can fulfill the needs of the PIO elements of the GEMMA award. Influencers which could impact this include future availability of staff due to health or personal issues.

The four full-time/six-month intern positions are influenced by availability of qualified students on the planned schedule of the project and ability of students to relocate on the salary provided. Each intern will be mentored by an identified PIO staff person in alignment with the project(s) content focus (education or communications) and staff time has been budgeted accordingly.

With the exception of four interns and an external contract for the production of key elements of a planetarium program, the GEMMA PIO project will utilize existing staff exclusively. These staff, and their skills are summarized in the following overview:

Peter Michaud (Project Manager): Michaud has managed the Gemini PIO department for over 20 years and has experience and education in science communications and education. He will bring his management, communications and education experience to bear in all elements of the program, including the planetarium program since prior to coming to Gemini he worked as a planetarium manager and producer.

Janice Harvey (Program Coordinator): Harvey has coordinated and overseen the Gemini North outreach programming for over 18 years and most significantly managed the flagship outreach program Journey Through the Universe which is going on its 15th year. Harvey excels in organization of events and logistics and will play an integral role in coordination of the GEMMA PIO summit and workshops, as well as the implementation and oversight of the internship program.

Manuel Paredes (Planetarium Production Coordinator): Paredes has led or assisted in educational programming at Gemini South in Chile for over ten years and has a background in video production and broadcasting. His production and communications skills make him well-qualified to oversee the GEMMA PIO planetarium production in conjunction with Michaud's background in planetaria.

Meg Schwamb (Scientific Advisor): As a Gemini North staff astronomer, Schwamb brought her experience as a research astronomer and her passion for engaging the public in astronomy to the project. Schwamb was instrumental in establishing the successful international Astronomy on Tap program and also heavily involved in the citizen science project Galaxy Zoo. Schwamb has made valuable contributions to the PIO program planning and early execution phase. She will be leaving the PIO project in Q3 2019 and her efforts will be assumed by John Blakeslee.

John Blakeslee (Project Sponsor): Blakeslee serves as Gemini’s Chief Scientist, and in addition to his role as Project Sponsor, he will act as a secondary scientific advisor for the GEMMA PIO program.

In addition to existing staff resources, it is expected that planetarium production will be contracted to an external production company. While many options exist for this type of work, a planetarium production funded by the NSF is under development with the California Academy of Sciences and a possible collaboration will be explored which could strengthen both programs as a result of this partnership. Additionally, video animations are planned which highlight several MMA and TDA facilities such as LIGO, LSST and other and partnerships will be explored for cost sharing of animations highlighting these facilities.

Existing staffing are expected to cover all of the needs for execution of this plan, with the exception of the production of planetarium programming. Because the yet-to-be-developed planetarium program storyline could require additional resources to meet the visualization needs of the project it could be necessary to explore alternate solutions as described in section 6.

5.2 Hiring and Staff Transition Plan

Existing staff have been identified who can fulfill the needs of the PIO elements of the GEMMA award. Influencers which could impact this include future availability of staff due to health or personal issues.

The four full-time/six-month intern positions are influenced by availability of qualified students on the planned schedule of the project and ability of students to relocate on the salary provided.

Because existing staff will be utilized to perform a significant role in the GEMMA PIO elements of this award, some existing part-time staff will be expanded to fill these roles. Discussions have already confirmed that these expanded positions are agreeable to part-time staff and an assessment of their skills reveals good alignment to the needs vacated by existing staff engaged in the GEMMA PIO program.

To address the potential gap in resources that could occur in the production of visuals to match the MMA-TDA storyline, partnerships are being explored which could provide existing and/or shared content to realize the goals of the project. This is the highest risk element of the GEMMA PIO programming and could require creativity in partnerships, storyline development and scripting to address this potential issue.

6 Risk and Opportunity Management

6.1 Risk Management Plan

The PIO Risk Management process includes identifying, assessing, monitoring, mitigating, contingency planning, and closing risks. The project manager owns the monitoring, mitigation, and contingency planning of these risks.

The project manager reviews the risks monthly to ensure mitigation is occurring and is effective and review the risks with the project team members at the project status meetings, as needed. The project manager will make necessary changes to the risk register at the project status meetings, including changes to impact and likelihood, mitigation strategy, contingency plans, and close risks as required.

Once the project is completed, the project manager will close all risks and the risk register. The risk register and plan will then be archived with the project documents.

6.2 Risk Register

The PIO Risk Register can be found [here](#).

6.3 Contingency Management Plan

Please refer to the Part III columns in the Risk Register for Contingency Management information. The risk Register is listed in Appendix A.

7 Configuration Control

7.1 Configuration Control Plan

The end product, as well as all previous product iterations, will be under Configuration Control. This means that all changes made to requirements, technical, cost and schedule are tracked and are subject to the approval of the Sponsor. This process adheres to the document control policies with all decisions and documents stored in the project team drive. This process is monitored by the project coordinator. The team sites will be the repository for all changes not under change control.

7.2 Change Control Plan

All changes to the project are requested through a Change Request Form and submitted by the individual Project Managers to the Project Sponsor. The sponsor will assess the benefit of the change and the impact on cost, timeline and resources available based on program impact and project need and decide if the change can be implemented. If the scope of the change is outside of the tolerances for the Sponsor, the Executive Committee will be asked to consult.

7.3 Documentation Control Plan

Gemini currently has a Document Control procedure in place that describes how documents are tracked and retrieved. For this, a Xerox supplied DocuShare application called Document Management Tool (DMT) is used. Released documents are stored in DMT and subsequent updates are uploaded while the old version is kept. Version change information is stored with each version. The tool complies with:

1. Security
2. Alerts/Notifications
3. Back-up

4. Version Control
5. Review/Approval
6. Use of different file types
7. Index/Searching (tags)
8. Reports

In addition, DMT has a secured area required for ITAR related documents.

9 Acquisitions

9.1 Acquisition Plans

Acquisition Plans will be developed as decisions are made regarding the proposed procurements during the project lifecycle.

9.2 Acquisition Approval Process

Gemini follows the AURA CAS procurement policies that can be found [here](#).

10 Project Management Controls

10.1 Project Management Control Plan

The project management team has defined a WBS with associated cost, scope and schedule and will use this as a roadmap to produce the deliverables. The team ensures frequent communication across all stakeholders with regular monitoring and reporting on a weekly and monthly basis. Gemini has a Portfolio Management Office which provides guidance to the project management process by providing:

- Methodology for the Project Life Cycle
- Project Management and Systems Engineering Templates.
- Reporting and resource allocation tools
- Training

Please refer to the Project Methodology documents listed under the Program Execution Plan Reference Documents. This methodology and the applicable templates are used throughout this project.

10.2 Earned Value Management System (EVMS)

This is covered in GEMMA Program Plan.

10.3 Financial and Business Controls

This is covered in the GEMMA Program Plan.

11 Cyber Infrastructure

11.1 Cyber-Security Plan

[Resource Document](#)

11.2 Code Development Plan

[Resource Document](#)

11.3 Data Management Plan

[Resource Document](#)

12 Environmental Safety and Health

12.1 Environmental Safety and Health Plans

The GEMMA PIO activities are not expected to have any significant impact on the environment, safety or health.

13 Review and Reporting

13.1 Reporting Requirements

Gemini is required by the CSA to provide quarterly financial reports and semi annual reports in throughout the life of the award. The reports are to coincide with other observatory reports required for the governance committees and Board.

14.2 Audits and Reviews

Audit and Reviews if applicable, have yet to be established for PIO.

16 Project Close-out

16.1 Project Close-out Plan

When the project nears the final product delivery a Project Close-out plan will be developed. Please refer to the Project Methodology documents listed under the GEMMA Program Plan Reference Documents.

16.2 Transition to Operations Plan

The PIO programs will not continue beyond the period of performance outlined in the schedule given the end of the funding from NSF.

17 Appendix A:

17.1 Response to NSF Comments

PIO PEP Documents Package		
PIO PEP		
Page	Section	Comment
5	1.4	<p>The involvement of interns in the PIO program is commendable. However, please expand on who will supervise these students; how will the students interact with observatory staff; is each student expected to present a report or talk at the end of their tenure; and what is meant by “will serve as community ‘ambassadors’ through online portals and other community education approaches”?</p> <p>Response: All interns will be based in Hilo at the Gemini North base facility and will work directly with PIO/EPO staff led by our local education and outreach coordinator and PIO manager. Depending upon the nature of each intern’s project (either education/outreach or communications) they will work directly with the appropriate manager and appropriate staff in PIO. The interns will perform their projects through existing portals such as social media, local outreach and classroom programming, web dissemination, etc. Each intern will also be given the option of writing a summary report of their work or presenting a (recorded) presentation to staff at the conclusion of their experience.</p>
7	2.3	<p>Please expand on the “partners from the professional planetarium community” who will contribute to the planetarium show.</p> <p>Response: Gemini works closely with planetaria as part of its programming, including the ‘Imiloa Astronomy Center in Hilo (adjacent to the Gemini North Base Facility) as well as with the recently NSF-funded planetarium production (BIG-Act Dome+) on Chilean observatories and staff led by PI Tim Spuck. Already research done in conjunction with the Dome+ production has</p>

		<p>played a role in refining the production plan for this initiative to focus on a modular program with individual short segments used to augment programming when a MMA/TDA discovery is made. Additionally, Gemini PIO staff have a long association with the International Planetarium Society due to past professional affiliations and initiatives. Finally, because the planetarium resources developed with this funding will be made available for free to the planetarium community, we anticipate (non-financial) collaborative support in their development, testing, and assessment.</p>
Staffing Plan		
2	2	<p>The plan raises staff availability under the new NCOA matrixed operations model as a possible area of concern. Changing roles under NCOA is certainly a risk area. Who will champion this project – and indeed GEMMA as a whole – as the NCOA transition progresses, and how will that person interact with the NCOA directorate and those managing the change?</p> <p>As far as the Broader Impact aspects of GEMMA are concerned, this will continue to be managed, directed, and championed by Gemini’s PIO Manager until completion, supported by the project sponsor. However as NCOA is implemented, it is expected that more resources from the expanded available workforce will become available which will strengthen the breadth of skills available to GEMMA both in Broader Impacts and beyond.</p>

17.2 PIO Budget Form 1030

GEMMA - Gemini in the Era of Multi-Messenger Astronomy: High Image Quality and Rapid Response					
Public Information and Outreach					
	FYE19	FYE20	FYE21	FYE22	TOTAL
Senior Personnel	0	0	0	0	0
Other Personnel	45,387	80,944	80,636	7,687	214,654
Total Salaries and Wages	45,387	80,944	80,636	7,687	214,654
Fringe Benefits	25,494	45,466	45,293	4,318	120,571
Total Salaries/Wages/Benefits	70,880	126,410	125,929	12,005	335,225
Equipment	0	0	0	0	0
Domestic Travel	45,567	9,949	4,073	0	59,589
Foreign Travel	23,134	9,065	2,761	0	34,960
Total Travel	68,701	19,014	6,834	0	94,549
Participant Support	0	0	0	0	0
Other Direct Costs: Materials and Supplies	1,500	6,000	3,000	1,500	12,000
Other Direct Costs: Publication/Documentation/Dissemination	0	0	0	0	0
Other Direct Costs: Consultant Services	12,000		12,000		24,000
Other Direct Costs: Computer Services	0	0	0	0	0
Other Direct Costs: Subawards	0	0	0	0	0
Other Direct Costs: Other	7,000	207,500			214,500
Total Other Direct Costs	20,500	213,500	15,000	1,500	250,500
Total Direct Costs	160,082	358,924	147,763	13,505	680,273
Indirect Costs - <i>Calculated on Total Project in IDC Account</i>	0	0	0	0	0
Total Direct and Indirect Costs	160,082	358,924	147,763	13,505	680,273
CSA Period of Performance Start:	10/1/18				
CSA Period of Performance End:	9/30/24				