Project Name:		
OBS10-006 GMOS-N CCD Upgrade		
Business objective served by this project		
Provide compelling instruments to our user community		
Project Manager/Leader:	Project Sponsor:	PDS Version/Date:
Scot Kleinman	Eric Tollestrup	V1 20Oct10

Project Description

Issue Statement:

The GMOS instruments are Gemini's most popular instruments, being used during roughly half of all the observing time assigned to each Gemini telescope. The GMOS focal plane array consists of three abutted E2V CCDs which have been in use since the instrument's arrival at Gemini in 2001. CCDs have improved in the ten years since GMOS was built and community desire for more modern CCDs in GMOS, particularly for increased red wavelength sensitivity has been increasing over the years.

To keep its instrument suite competitive and compelling, Gemini is starting its 4th generation of new instruments, including appropriate upgrades of current instruments. With no current plans to replace the GMOS instruments, an upgrade will help ensure they remain productive workhorses through this decade.

Project Objective Statement (POS):

Provide new, state of the art, red-sensitive CCDs to GMOS-N.

Project Flexibility:

Flexibility Matrix	Least Flexible	Moderately Flexible	Most Flexible
Scope		X	
Schedule	X		
Resources			X

Major Deliverables:

- New CCDs for GMOS-N
- New Detector controller
- New integrated Lakeshore Temperature controller
- New ICD-compliant Nod and Shuffle implementation

Assumptions:

- I assume the technical issues encountered with the CCDs and controller will be solved in a matter of weeks.

- I assume we will need an additional project at the end of this one to produce a revised system that meets all our original specifications, and not just our current descoped minimal useful system.

IS and IS NOT:

Decribe what the project **is** and what the project **is not**, you can have as many **is** or **is not** as you want.

- **IS:** a fully-integrated set of new CCDs for GMOS-N which have outstanding red QE out to 1.0 microns
- **IS NOT:** going to take full advantage of the potential read noise decrease and readout speed increase these CCDs should be capable of

Strategy and Resources

Milestones and Stages:

See PI project plan and Stages documents.

- OBS10-006: GMOS-N Project Overview
  - Stage 1: Build phase continuation
  - Stage 2: Gemini Testing
  - Stage 3: Installation at HBF
  - Stage 4: Summit Installation
  - Stage 5: On-telescope Commissioning
  - Stage 6: DD Science Testing
  - Stage 7: Longterm Improvement Project Development
- OBS10-006A: GMOS New CCDs
  - Covers parts of Stages 1-4 above
- OBS10-006B: GMOS-N CCD science commissioning
  - Covers Stage 5 above
- OBS10-006C: GMOS DR for new CCDs
  - Data reduction software effort needed for the new CCDs/controller and data format
- GMOS-N CCD Software Updates
  - Remaining software effort

Estimated Costs:

- Total 4,089hrs
- Contract with HIA already encumbered
- A few more site visits and probably visits from GS to GN needed: maybe $20K

Core Team Members(see Guidelines for Developing New Projects document):

- **Project Manager:** Scot Kleinman
- **Project Scientist:** Kathy Roth
- **Systems Engineer:** Manuel Lazo

Extended Core Team Members:

- #DA
- #DPD
- #SSA
- #SWHL Eng
- #SWRT Eng
- Andy Stephens
- Brian Walls
- Emma Hogan
- Eric Tollestrup
- Gustavo Arriagada
- Javier Luhrs
- John White
- Kaniela Dement
- Kathleen Labrie
- Kevin Hanna
- Kristin Chiboucas
- Neal Masuda
- Ricardo Schiavon
- Rodrigo Carrasco
- Rolando Rogers

Dependencies that require coordination:

The current group of sub-projects need merging and/or linking of milestones and tasks. They appear to be approximately independent now without much work overlap. Some resources need specifying.

Risks and Issues:

- The current CCDs may not be suitable for scientific use
- The current descoped system may not pass scientific muster
- The current controller may never produce low enough noise
- HIA may not deliver quality work
- More CCDs/Controller boards may fail

Supplemental Resources: