

Questions from the CAA committee



Meeting will be discussion based.

- * Until now the 25/75 time split has been preserved. Do you think maintaining a time split is essential for guaranteeing that Roman achieves its science requirements? Can the Science requirements be achieved without insisting on a specific time split?
- * Can you clarify and elaborate on the planned community process. How will selection of teams be made? Who will receive funding? What is the duration of funding? How do conflicts between CCS and other science objectives negotiated? (we do realize that pieces of this were presented earlier.)
- * Have you studied the LSST and other community-driven optimization processes? If so, which elements fit Roman, which elements don't? What have you learned so far about possible pitfalls with Roman-related community processes?
- * Do the data of the 30 general astrophysics competed surveys become available immediately?
- * How much of the observing plan must be fixed how long prior to launch?
- * What are the Roman's (~two) highest technical risks and if failures occur how might these impact the CCS? What mitigation is planned for? Is a post-launch critical review planned to assess Roman's in-flight capabilities, and to possibly trigger re-evaluation of the design of the CCS?





- Until now the 25/75 time split has been preserved. Do you think maintaining a time split is
 essential for guaranteeing that Roman achieves its science requirements? Can the
 Science requirements be achieved without insisting on a specific time split?
 - There isn't a 25/75 split, the requirement is that at least 25% of time is devoted to General Astrophysics Surveys.
 - Our plan is that the amount of time allocated to GA surveys, and the definition of the core surveys, is defined by the Roman community via the community process described on Feb 24.
 - The community can allocate more than 25% time to GA surveys, but cannot allocate less, this is why the charge to the CAA ROWG is to ask if the constraint should be relaxed (e.g. to 20% or 15%) so that the community has greater flexibility on how to use the time.
 - The analysis/simulations performed for the Roman Mission Critical Design review showed that science requirements could be met with 25% of time reserved for GA surveys. We are currently unable to confirm mission performance against science requirements against anything other than the notional surveys baselined for that review. We plan to support simulations/analysis during the community process to evaluate mission performance against science requirements. This will include the ability to evaluate cases with >25% time to GA Surveys.





- Can you clarify and elaborate on the planned community process. How will selection of teams be made? Who will receive funding? What is the duration of funding? How do conflicts between CCS and other science objectives negotiated? (we do realize that pieces of this were presented earlier.)
 - Each Roman Core Community Survey will be used by many teams for a wide variety of science investigations. They need to serve everyone.
 - The science team selections are separate/independent of the community process
 - The survey names are general and do not refer to any specific science case
 - We will address science community funding and community process in the following slides



Wide Field Science Proposals



Preparing for and enhancing Roman WFI Science

- Can include, but are not limited to, any combination of the following topics:
 - Precursor observations using ground- and/or space-based observatories to prepare for future *Roman* science observations and/or to provide calibration capability;
 - Development of *Roman* analysis software beyond that provided by the Science Centers. This could include topics like machine learning techniques in time domain astrophysics, high precision astrometric measurement techniques, etc.;
 - Development of algorithms for joint processing with data from other space- or ground-based observatories such as deblending algorithms, photometric redshift training and calibration, or forced photometry;
 - Theoretical and/or phenomenological modeling directly related to Roman capabilities;
 - Instrument calibration and characterization;
 - Development of survey strategies;
 - Development of simulation tools, producing simulated datasets, and conducting or participating in data challenges.

Supporting the Roman project and Science Centers

 WFS supported teams are expected to form part of the funded Roman science community providing support and guidance to the Roman project and science centers.

Excerpt from March 10 presentation – "Community Support and Science Operations"



Roman Science Community Funding

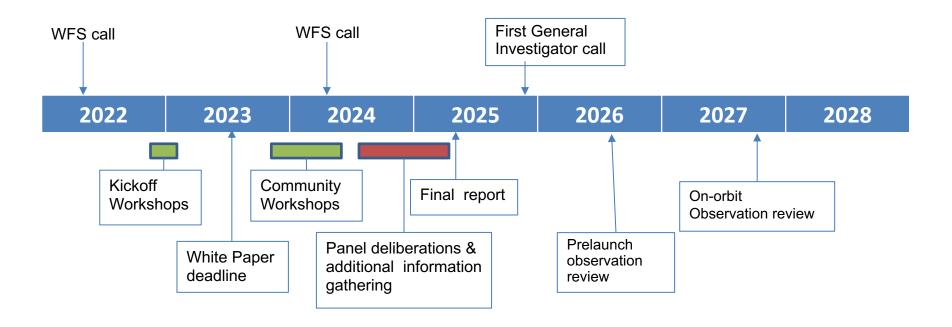


Who will receive funding?

Anyone at a US-based institution with a selected proposal. No constraint on science topic/area

Duration of funding?

Two years (WFS regular) or Four years (WFS large)





Community Process



- For more details see the presentation from Feb 24 "slides to guide discussion of community process"
- Committee structure to do the work of recommending survey definitions based on community input
 - Individual survey committees (one for each of the core community surveys)
 - Include advocates for core science, and range of astrophysics relevant to that survey (drawn from science teams, authors of white papers etc)
 - For example, for HLWAS might include advocates for weak lensing, near field cosmology, galaxy evolution, galaxy clusters, brown dwarf etc
 - Evaluate survey options against science metrics/figures of merit, and other considerations
 - Produce recommendation for survey definition with options for extensions/enhancements
 - Top level Steering committee (comprising reps from the individual survey committees + advocates for general astrophysics surveys)
 - Provides recommendations on balance between the various core community surveys and the general astrophysics survey program





- Have you studied the LSST and other community-driven optimization processes? If so, which elements fit Roman, which elements don't? What have you learned so far about possible pitfalls with Roman-related community processes?
 - Yes: Rubin, ZTF, Fermi, Hubble deep field etc
 - Allocate plenty of time for this process
 - Need simulations to quantify impact of survey choices
 - Community science teams/working groups helpful to provide framework to engage community
 - Provide funding/support across all science areas
 - Figures of Merit/Metrics useful to quantify impact of various survey choices but be aware of considerations that cannot easily be quantified





- Do the data of the 30 general astrophysics competed surveys become available immediately?
 - Yes
 - Note that the distinction between CCS and GA Surveys is not community defined vs GO-style competition. We anticipate that some of the GA surveys may be defined via community processes.





- How much of the observing plan must be fixed how long prior to launch?
 - The core community surveys need to be defined (at least in broad outline) 18 months before launch.





- What are the Roman's (~two) highest technical risks and if failures occur how might these impact the CCS? What mitigation is planned for? Is a post-launch critical review planned to assess Roman's in-flight capabilities, and to possibly trigger re-evaluation of the design of the CCS?
 - Top two technical risks both relate to exceeding wave front error requirements (time varying thermal
 effects, and mechanical vibrations). Requirements are currently being met with margin, but we don't yet
 have the flight hardware characterization data to confirm.
 - Some mitigations should this become an issue:
 - Relax jitter requirement to keep short settle time, and accept greater pointing jitter at beginning of exposures.
 - If the end result is increase in settle time, allocate more time as necessary to the observing programs to make up for the reduced efficiency
 - allocate additional observing time to recover the necessary S/N on photometry, astrometry, or shape measurements as appropriate
 - Yes, there will be post-launch review of in-flight capabilities