ROMAN
SPACE TELESCOPE

Roman Project News

November 2021

Some project news items

- Mission CDR Sept 20-27
- Lots of things are being built and tested (more from Jeff)
- Formulation Science Working Group disbanded
  - Science Investigation teams contracts have ended
  - Held closeout workshop last week

Covid-19 impacts

- COVID-19 operations March 2020 - September 2021 affected project efficiency and global supply chains during project's planned peak years
- Roman execution efficiency April 2020 – March 2021 averaged 70%
  - On-site work constraints, collaboration challenges etc
- Global supply chains experienced significant impacts
  - Increased no-bids; bid durations increased, sometimes doubling; vendors unable to offer expediting options; deliveries slipped, sometimes without warning; choke points developed,
  - Extremes of the supply chain impacts resulted in very large delays in a handful of significant deliveries;
    - 6 months longer for the WFI Beryllium Element Wheel
    - Global shortages in supply chain for raw materials drove multi-week delays from all composite vendors; put optical bench on critical path along with the element wheel
  - Schedule slack and then reserves were adjusted, applied, and eventually consumed to mitigate the impact to critical path -- led to an overall schedule replan

Cost and Schedule – some definitions

- Management Agreement (MA)
  - Agreement between NASA HQ and Roman project
  - Includes schedule and funding reserves held/controlled by the Roman project
- Agency Baseline Commitment (ABC)
  - Agreement between NASA HQ and stakeholders (e.g. congress)
  - Relative to MA, includes additional schedule and funding reserves held/controlled by NASA HQ
  - It is a big deal to change this!

Covid Replan

- Baseline schedule in Feb 2020
  - MA launch readiness date: Dec 2025
  - ABC launch readiness date: Oct 2026

- Carefully tracked covid-related cost and schedule impacts separately from everything else, assuming covid impacts continue through Sept 2021

- Covid Replan schedule (May 2021):
  - MA launch readiness date: July 2026
  - ABC launch no later than: May 2027
  - (i.e. 7 month schedule slip, cost increase of $382M to both MA and ABC)

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Critical Design Review

- What is the CDR?
  - One of a series of a half-dozen “Lifecycle Reviews”
- What has to be demonstrated at CDR?
  - All designs completed.
  - All trade studies completed.
  - Prototypes of all new designs built and tested.
  - All interface control and manufacturing documents/drawings completed.
  - Tests of prototypes demonstrate that requirements are met with requisite margins
  - Test plans must be mature
    - Test plans comprehensively address all requirements
    - Test facilities available
    - Test equipment is available or has appropriate plans for development
    - Staffing is in place
  - Schedule is complete and supports launch date with requisite margin
    - Integrated master schedule contains all activities with links, including all partners
      - Can be tens of thousands of events
    - Planned resources supports the integrated master schedule
      - Budgets, staffing, facilities…

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Critical Design Review

- The lifecycle reviews are not an event, but a process.
- NASA HQ charters a Standing Review Board (SRB) to conduct these reviews
- The CDR itself was 6 days, covering the spacecraft and the mission as a whole
- Close to 100 Engineering Peer Reviews are held in advance of the CDR
  - Panels typically include a subset of SRB members
  - The CDR provides the big picture view; the detailed technical review occurs in the EPRs
- The meeting part of the review focused largely on a summary of the technical aspects
- In parallel, the project works with the SRB over a period of months to brief them on the details of the budget and the integrated master schedule
- The SRB performs an independent assessment of the budget and schedule
- (we are here)
- Following the CDR, the SRB reports at the following series of meetings:
  - Goddard Center Management Council - planned 11/23
    - Goddard decides on baseline to recommend for proceeding with the mission
  - NASA HQ Science Mission Directorate Program Management Council (DPMC) – planned 12/7
    - SMD decides on baseline to recommend for proceeding with the mission
  - NASA HQ Agency Program Management Council (APMC) – planned 1/20
    - This is where final updates to the budget and schedule for the mission are determined

Critical Design Review Outcome

- We passed!
  - Findings include 14 Strengths, 1 Issue, 17 Concerns and 13 Observations
- Independent cost and schedule assessment find mission is achievable within ABC cost and schedule with high confidence
- Issue – inadequate project reserves within MA cost and schedule
  - Outcome of CMC, DPMC and APMC is likely to shift MA launch date by a few months; no change to ABC