
Proposed Schedule

Evaluator's View

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Agenda

- How AOs Address Schedule
- How Proposers Present the Schedule
- How Aerospace Evaluators Assess the Proposal's Schedule
- What We Would Like to See in Proposals
- Recommendations

How AOs Address Schedule

- Normally, under “Management and Schedule” section there are discussions of the schedule reserve/critical path and presentation of the Integrated Master Schedule (IMS) figure showing top level schedule and major milestones
- Schedule is referred to in a general context of “...within committed cost and schedule” or “cost, schedule and Technical performance...”
 - Level of details and information (including granularity of schedule timeline) varies from one proposal to another

How AOs Address Schedule – (excerpts taken from MarsScout AO NNH06ZDA0020, May 1, 2006)

- “A project schedule to meet the proposed launch date and covering all phases of the investigation must be provided”. “The schedule must include, as a minimum:
 - Proposed major project review dates;
 - Instrument development;
 - Spacecraft development;
 - Instrument-to-spacecraft integration and test;
 - Launch vehicle integration;
 - Mission operations and data analysis; and
 - Planning and implementation of the E/PO program including synergy with the MEP E/PO plans”
- “The schedule reserve and critical path (i.e., the sequence of major activities and milestones that must be accomplished in the planned sequence and are critical to implementation success) must be clearly identified”.
- “If applicable, this section should also include a description of the National Environmental Policy Act (NEPA) and Nuclear Safety Launch Approval requirements for the proposed mission, and a brief description of the implementation plan, including schedule, for satisfying these requirements”.

How Proposers Present the Schedule (samples from 5 Step 1 proposals)

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Task	FY	08	09	10	11	12	13	14	15	16	17	18	19	20	21
Major milestones		Phase A			Phase B			Phase C/D			Phase E				
		◆ Contract Award 2008/06/01						◆ Launch 2015/05/01							
Phase A ATP Received		◆ 2008/10/01													

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Task Name	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	...FY23				
Project Phases	A	Bridge	B	C	D				E					Extended Mission				
Milestones	ATP	ICR	IC	CR	CBD	CDR		ESA SHIP		IIR SHIP	KSC FRR	LAUNCH		IHI OPEN DOOR	Initial data & calibration	Data collection & analysis	Nominal Mission end	Mission end

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Tasks	Start	Finish	2008				2009				2010				2011				2012																
			J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S

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Task	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16-FY21
Key Decision Points		▲ KDP-A	▲ KDP-B	▲ KDP-C					
Major Reviews		▲ ICR	▲ SRR	▲ CR	▲ PDR/CDR	▲ PER	▲ PSR		

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Mission Phases A-D	'08	CY2009				CY2010				CY2011				CY2012				CY2013				CY2014				CY2015						
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	Phase A				Bridge	Ph. B				Phase C/D												Ph.E										
Milestones/Reviews	▲ 1	▲ 2-3				▲ 4-5				▲ 6-7				▲ 8				▲ 9				▲ 10-11				▲ 12						

How Proposers Present the Schedule

- A schedule discussion with random (self-chosen) elements, and presentation approach
- Examples of Elements that may or may not be in proposal's schedule discussion:
 - Schedule justification
 - Standard NASA Work Breakdown Structure (WBS) based schedule
 - Critical path
 - Long lead items
 - Allocations of Schedule Reserves
 - Interim Delivery Dates and Review Dates
 - Major Milestone dates in relation to schedule details
 - Management Risk Plan in relation to schedule details
 - Descope Plans in relation to schedule changes
 - Major deliverables in relation to team structure and partnership
 - Mission Operations and Science Operations
 - ITAR, EP&O, SEO, TDO, SC, etc...

How Aerospace Evaluators Assess the Proposal Schedule

- Quantitative assessment
 - Based on analogy to previous missions
- Qualitative assessment
 - Based on assessment of proposal write-up as relevant to the schedule discussion

What We Would Like to See in Proposals

Elements	Comments	Required	Desired
Major Mission Milestones	Roll up of all major milestones (including major decision point dates) on the top of the IMS	√	
	Contract award date, PDR, CDR, Spacecraft I&T, Observatory I&T, PSR, Launch date, etc.		
	This roll up should make sense		
Standard (NASA) WBS based Schedule	Spacecraft subsystems	√	
	All instruments development and delivery dates		
	Mission Operations and Science Operations		
Major Deliverables	ICDs, simulators, engineering modules, flight modules, etc.	√	
Low TRL	Low TRL development plan should be addressed in schedule, with major decision points/paths, fallbacks and alternatives indicated with schedule dates	√	
Long Lead Items	Specification of what they are and not just a place holder	√	
Critical Path(s) Indication	Justification for the critical path indication	√	
Risk Plan Schedule	Risk in relations to schedule implementaion and overall schedule impact	√	
Parallel developments for risk mitigations	Show alternative paths to the critical path, if any		√
Descope Options	Mission descope options/impact to schedule and decision dates	√	
Software Development	Projected software build releases based on major milestones		√
Science Enhancements Opportunities (SEO) and Technology Development Opportunities (TDO)	Their development paths should be included in the IMS	√	
Student Collaborations (SC) and EPO	Their development paths should be included in the IMS		√
ITAR	Realistic ITAR schedule		√
Licenses	Schedules for obtaining licenses		√
PDS	Planetary Data System (PDS),e.g. level 1, level 2 data delivery schedules		√
Funded Schedule Reserve	Indications of appropriate reserves associated with major milestones/deliveries	√	

What We Would Like to See in Proposals

- The proposal schedule write-up should be indicative of how potential challenges would be managed
 - The IMS figure should reflect proposer’s implementation approach (as opposed to just creating generic “place holders” for details to be filled out at a later time)
- Provide basis of estimates for the proposed schedule
 - If heritage or other mission data is used we would like to understand similarities and differences in terms of schedule
 - Provide explanation of why certain milestones are longer or shorter
- Certain discussions such as Risk plans and Descope options and Long Lead items should have clear assessment of their impacts to proposed schedule
- The IMS figure should become more standard
 - In terms of look as well as the expected content
- Provide funded schedule reserves including a rationale for proposer’s reserve allocations
 - Indicate if any internal company guidelines are followed for this process

What We Would Like to See in Proposals

- Step 2 criteria and guidelines require much of the details we are requesting here for Step 1
- As a result, in Step 2, proposers provide additional MS Project files as supplied by the spacecraft, instruments and other organizations
- We would like the Step 1 schedule to be at the roll up summary level of the Step 2 schedule details
 - So that key milestone dates, critical decisions and efforts are captured on the schedule for evaluation

Recommendation

- AO should specify schedule related requirements more clearly
 - Clearly indicate what is expected in the schedule discussion and what should go into the IMS figure
 - Management risk plans, descope options, TRLs, delivery of Long Lead items, etc., should be noted more clearly in the AO write-up
 - The granularity of schedule details should be expected uniformly of all proposers
- This will help both the proposers as well as the evaluators in assessing schedules