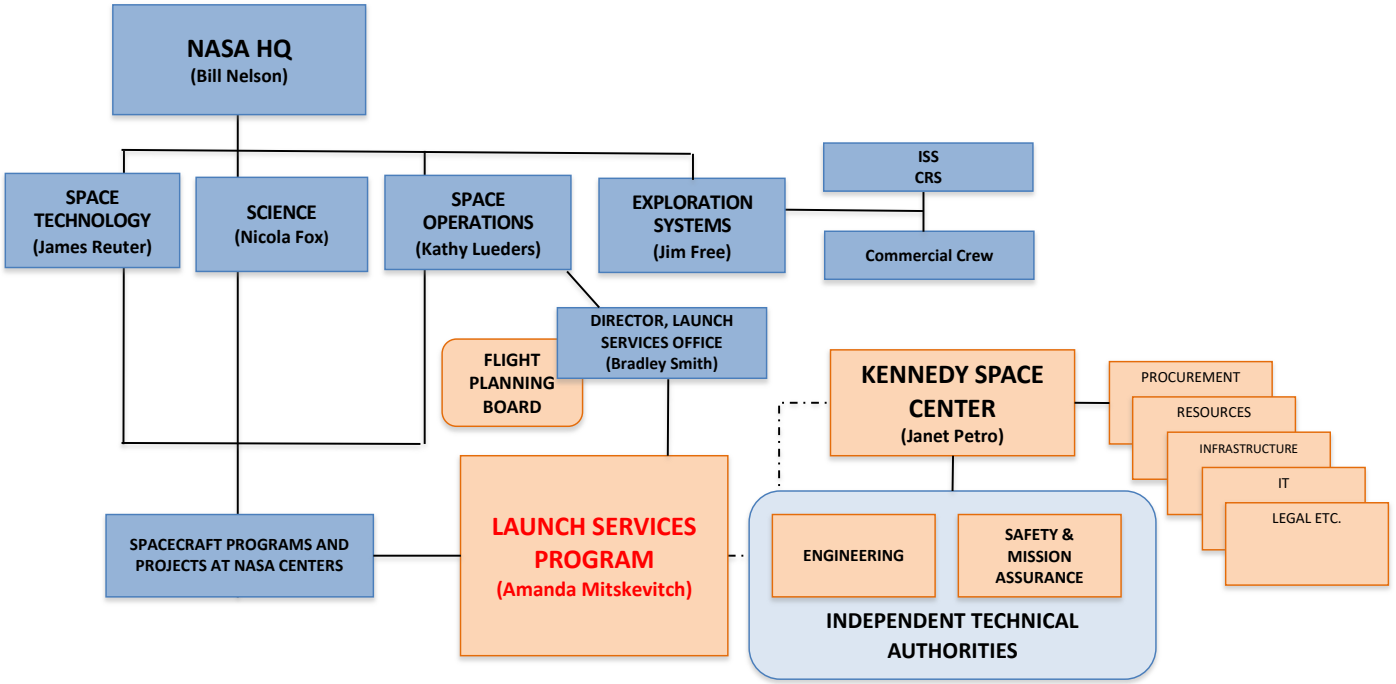
JOHN F. KENNEDY SPACE CENTER

LAUNCH SERVICES PROGRAM

LAUNCH SERVICES
2023 ASTROPHYSICS PROBE EXPLORER (APEX) AO
PRE-PROPOSAL CONFERENCE

John Calvert
Flight Projects Office
Launch Services Program
August 18, 2023

LSP Relationships
(NASA HQ/SOMD/KSC



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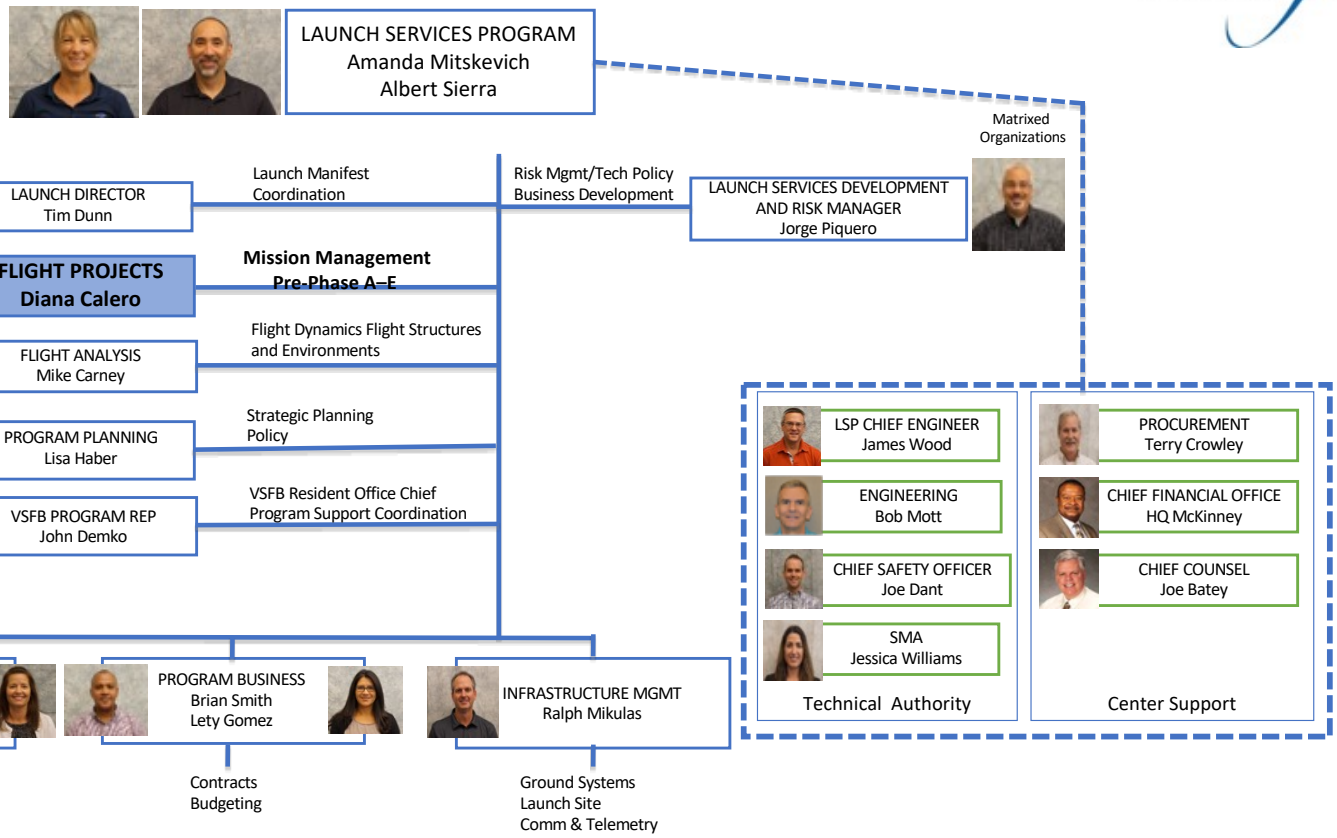
LSP Organizational Structure



What Does LSP Provide?

- Procurement and management of the launch service
- Coordination of mission-specific integration activities
- Technical insight of the launch vehicle production/test
- Oversight (approval) of mission unique launch vehicle hardware/software development
- Launch campaign/countdown management and formal readiness reviews
- Payload-processing accommodations

NASA Provided Primary Launch Service
APEX AO

- SMD/APEX will provide a baseline expendable launch vehicle service (outside of PI-Managed Mission Cost) including all standard and some mission unique launch service costs.
  - Roughly equates to “intermediate” class vehicle with a standard sized 5m payload fairing (PLF)
  - Missions requiring a higher performance (i.e, “heavy” class) and/or larger volume PLF will be subject to cost cap adjustments between $50-65M
  - Launch Site Payload Processing

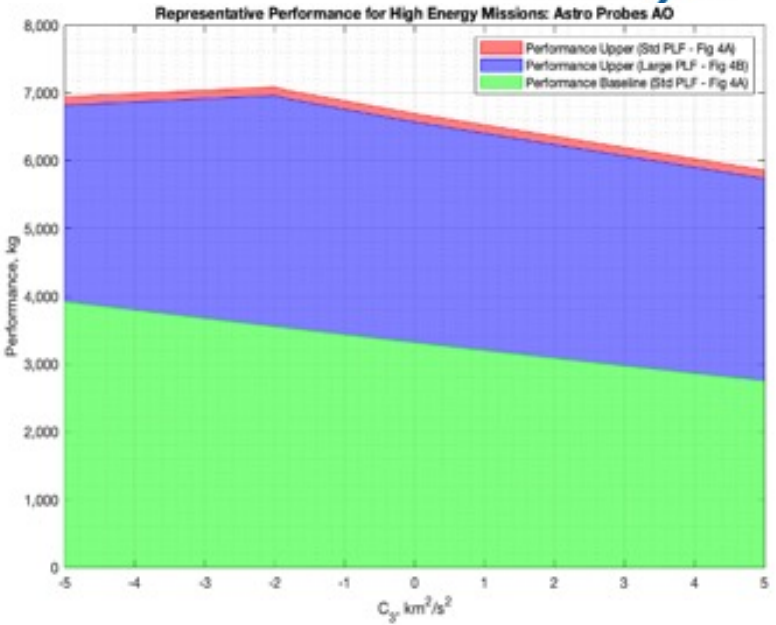


Figure 1: Constraining High Energy Performance Curves

C_3, km²/s²	Baseline	Upper (Standard Fairing)	Upper (Large Fairing)
-5	3915 kg	6935 kg	6810 kg
-2	3545 kg	7085 kg	6960 kg
5	2745 kg	5855 kg	5730 kg

NASA Provided Primary Launch Service
APEX AO (Cont'd)

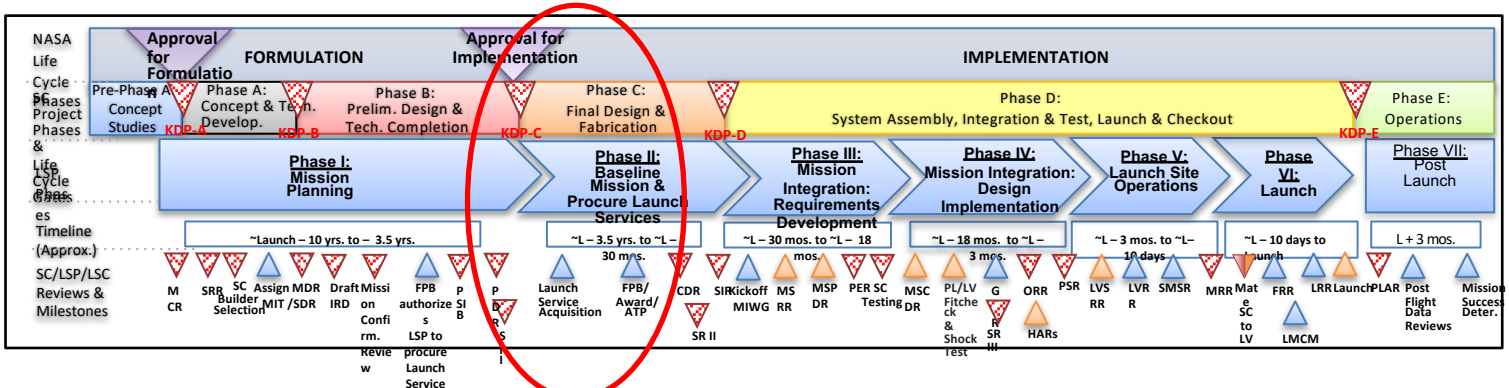
- Standard Mission Uniques – items typically necessary to customize the basic vehicle hardware to meet spacecraft driven requirements. Already budgeted for are items like:
  - Standard payload separation systems, adapters, and payload isolation system
  - Grade B GN2 or pure air purge prior to T-0
  - ISO 14644-1 Class 7 (Class 10K) integration environment
  - Pre-ATP studies such as coupled loads and/or trajectory analysis
- Examples of costs NOT covered by the APEX Program:
  - Custom/uncommon payload adapters or separation systems
  - Auxiliary propulsion
  - Payload-caused launch delays
- Alternative Access to Space arrangements are NOT available under this AO
- For more details reference the 2023 Astrophysics Probe Explorer AO Launch Services Program Information Summary document in the AO library

AO Risk Assessment for Launch Services

- LSP's focus will be on providing a "Launch Service Risk Assessment" in accordance with the Launch Service Information Summary (LSIS) and will provide a risk-based input assessing the level of LV compatibility for each proposed SC
- A rough definition of risk categories is provided here.:
  - **LOW Risk** – Proposal fully compliant with LSIS Attachment 1 environments, capabilities and performance. Easily compatible with multiple LV providers in the contract pool and will likely result in highly competitive launch vehicle acquisition environment.
  - **MEDIUM Risk** – Minor exceedances to LSIS Attachment 1 with supporting rationale provided. Challenging/uncommon orbital insertion requirements or other factors that reduce competitive environment. The key here will be to identify LSIS non-compliances that will require additional assessments in future phases and/or may eliminate some LV providers.
  - **HIGH Risk** – Major exceedances to LSIS envelopes. Development of LV capabilities not yet demonstrated. Proposal results in compatibility with only one potential LV provider, resulting in a non-competitive or sole source acquisition

NASA Launch Services Contracting

- The acquisition of a NASA-provided domestic expendable launch vehicle proposed for this AO will be procured and managed by the NASA/Launch Services Program (LSP) via the NASA Launch Services II (NLS-II) contract.
  - Current NLS-II order period ends June 2030, with flyout by end of CY32
  - Launch dates beyond 2032 would potentially fly under a new follow-on contract
  - Domestic launch vehicle certified as category 1, 2 or 3 per NPD 8610.7D



Summary

It is the Launch Service Program's goal to ensure the highest practicable probability of mission success while managing the launch service technical capabilities, budget and schedule.

LSP POC for Astro Probes 2023 AO:

John Calvert- Mission Manager
NASA Launch Services Program – Flight Program Office (Code VA-C)
Kennedy Space Center
john.h.calvert@nasa.gov