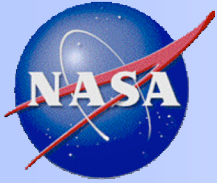




Independent Review Process

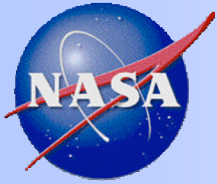
NPR 7120.5D

This is one of a series of training presentations covering important topics in NPR 7120.5D.



Purpose

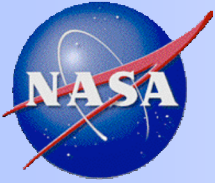
The objective of this presentation is to provide an understanding of the Independent Review Process specified in NPR 7120.5D.



What Is the Independent Life-Cycle Review Process?

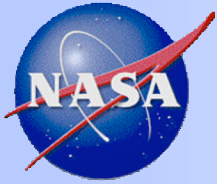
The review of programs and projects at each life cycle milestone by competent individuals who are not dependent on or affiliated with the program/project to objectively assess:

- The adequacy and credibility of the **technical approach**. (including but not limited to: requirements, architecture, and design),
- **Schedule**,
- **Resources**,
- **Cost**,
- **Risk**, and
- **Management approach**;
- **Progress** against the Program/Project Plan;
- **Readiness** to proceed to the next phase; and
- **Compliance** with NPR 7120.5 and 7123.1 requirements.



Why Have A Life Cycle Independent Review Process?

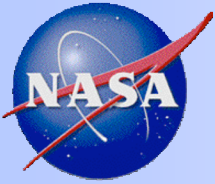
- **NASA's success, as well as a program or project's success, is supported by:**
 - **The proper balance of power** between organizational elements and
 - **A robust check and balance system** based on the principle that “No one can grade their own work”.
- **The Agency's governance structure which separates Programmatic Authority and Institutional Authority (includes the Technical Authorities) and the independent assessment process work together to provide the healthy tension that ensures decisions have the benefit of different points of view and are not made in isolation.**



Why Have A Life Cycle Independent Review Process? (Cont.)

To provide:

- The **program/project** with a credible, objective assessment of how they are doing.
- **NASA senior management** with an understanding of whether
 - The program/project is on the right track,
 - Is performing according to plan, and
 - Externally-imposed impediments to the program/project's success are being removed.
- A **credible basis for a decision** to proceed into the next phase.
 - The independent review also provides additional assurance to external stakeholders that NASA's basis for proceeding is sound.

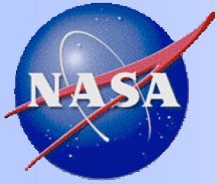


Independent Life-Cycle Review Process

Key Elements

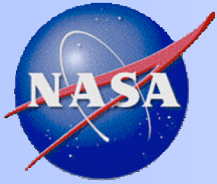
- **Convening of the Review**
- **Assembling the **Standing Review Board** members**
- **Conducting the Review**
- **Issuing the Board Report (Findings and Recommendations)**
- **Program/project dispositioning of the report**
- **Center Management Council reporting its assessment**
- **Governing PMC reporting its assessment and providing a recommendation to the Decision Authority**
- **The Decision Authority making the readiness decision**

More details to come



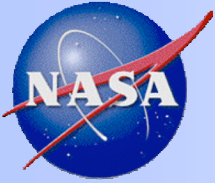
Who Convenes the Review?

- **The Office of the Administrator, the MDAA, the Technical Authority Programmatic Authority, and PA&E are involved in convening the Standing Review Board (SRB) for life **cycle reviews**.**
- **In addition to the life cycle reviews, the Office of the Administrator, MDAA, or a Technical Authority may also convene **special reviews** they determine to be needed.**



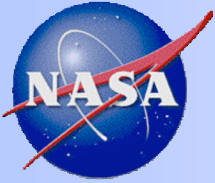
What Is A Standing Review Board?

- The Standing Review Board (SRB) is the **independent advisory** board that makes independent Life-Cycle reviews.
- The goal is that the SRB remains intact having the **same core membership for the duration** of the program/project, although it may be augmented over time with specialized reviewers as needed.



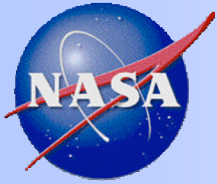
Board Members

- Board members must be **competent, current, and independent** (not dependent on or affiliated with the program/project) and some members must be independent of the program/project's participating Centers.
- Board members are chosen based on their management, technical, and safety and mission assurance **expertise**, their **objectivity**, and their **ability to make a broad assessment** of the implementation of a program/project that employs numerous engineering and other disciplines.



Board Members (Cont.)

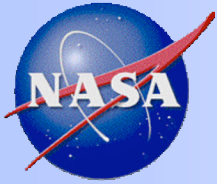
- Board members responsible for the Independent Cost Analysis (ICA) of **programs and Category 1 and 2 projects** are provided by the Independent Program Assessment Office (IPAO).
- For **Category 3 projects**, board members responsible for the Independent Cost Estimate (ICE) may be provided by the IPAO, the Center Systems Management Office (SMO), or Center systems management function, as appropriate.



How Is The Scope Of The Review Established?

The **Terms of Reference (ToR)** specifies the nature, scope, schedule, and ground rules for the independent review.

- NPRs 7120.5 and 7123.1 provide a general description of what should be covered in a milestone review. This includes the **gate products** that must be submitted for the key decision point being reviewed.
- The convening authorities include any specific review objectives or requirements in the ToR.



Scope (Cont.)

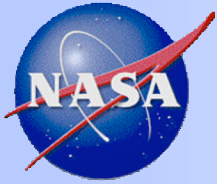
Programmatic Authority

Assessment includes the **accomplishments** in fulfillment of programmatic requirements as well as program/project designs, interfaces, interactions, and processes.

Institutional Authority

Assessment includes **Center support** and whether the proper technical standards, processes, and practices are being applied

Assessment includes whether the **Technical Authorities** have properly evaluated and dispositioned waivers, applied the correct standards, provided the needed support to maximize the likelihood of success, etc.

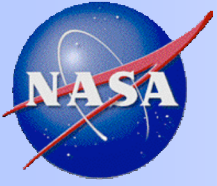


Scope (Cont.)

Gate Products to be Submitted

Products	Formulation		Implementation			
	KDP 0 (if required by the DA)	KDP I	KDP II	KDP III	KDP IV	KDP n
Program Products						
1. FAD	Baseline	Baseline				
2. PCA		Baseline	Update	Update	Update	Update
3. Program Plan	Preliminary	Baseline	Update	Update	Update	Update
4. Interagency & International Agreements		Baseline	Update	Update	Update	Update
5. Traceability of Program Requirements on Projects to the Agency Strategic Plan	Preliminary	Baseline	Update	Update	Update	Update
6. ASM minutes		Final				
KDP Readiness Products						
1. Standing Review Board Report	Final	Final	Final	Final	Final	Final
2. CMC Recommendation	Final	Final	Final	Final	Final	Final
3. Program Manager Recommendation (includes response to SRB Report)	Final	Final	Final	Final	Final	Final
4. MDPMC Recommendation	Final	Final	Final	Final	Final	Final
5. Governing PMC Recommendation	Final	Final	Final	Final	Final	Final

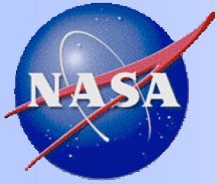
Table 4-1 Program Gate Products Maturity Matrix



What Determines The Depth Of Review?

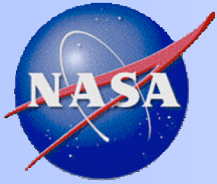
- **The Terms of Reference (ToR) and**
- **The depth at which the SRB can tell that the entire design holds together adequately and that the analyses, development work, systems engineering and programmatic plans (e.g., cost, schedule, etc.) support the design and the decisions that were made.**

Typically, this requires evaluation of the work at the system level (e.g., propulsion), at least. For critical or complicated systems, the SRB may look at lower levels (e.g., parachutes).



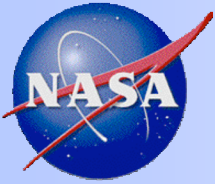
What Determines The Depth Of Review (Cont)?

- The decision on depth is the responsibility of the SRB.
- The depth must be sufficient to support the SRB providing NASA senior management with an accurate and objective assessment of the readiness of the program/ project to proceed to the next phase.
 - In the case of a special review, the depth must be sufficient to fulfill the task given.



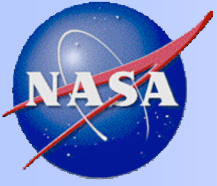
SRB Report

- **Contains findings and recommended actions and documentation of Dissenting Opinions**
- **Is sent to the relevant individuals (e.g., Decision Authority, MDAA, Program Manager, Project Manager, Technical Authorities, Associate Administrator for PA&E, and participating Center Directors)**
- **Findings and recommendations are dispositioned by the program/project**
 - **Once the program/project internal reviews and the SRB independent life cycle review are complete, the life cycle review milestone is considered complete.**



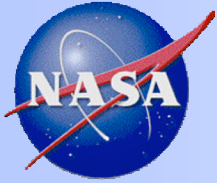
Governing PMC

- **Evaluates the:**
 - **SRB Report**
 - **Program's/project's proposed disposition of SRB findings and recommendations**
 - **Center Management Council (CMC) assessment**
 - **Other inputs (e.g., from the Technical Authorities).**
- **Recommends to the Decision Authority whether the program/project has fulfilled the required gate products and should proceed into the next phase.**



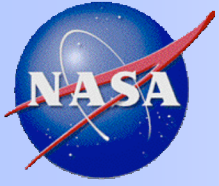
Who is the Decision Authority ?

- **NASA Associate Administrator for Programs and Category 1 projects**
- **Mission Directorate Associate Administrator for Category 2 and 3 projects**

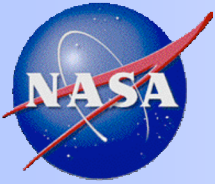


Conclusion

The NASA governance structure and the independent review process, which centers on the SRB, work together to support program/project success.

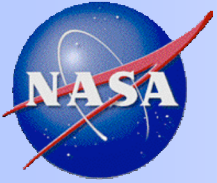


Back up



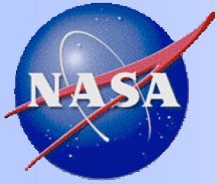
Example of An Agenda For A Milestone Review

- **Purpose of the review & the charge to SRB by the Convening Authorities**
- **Project overview & status**
- **System engineering & status**
 - Requirements & V&V plans
 - Trade studies
 - Technical margins
- **WBS-program/project level design state & status for each area**
 - System design
 - Key requirements
 - Trade studies
 - Technology readiness
 - Acquisition strategy & long lead
 - Logistics & facilities
 - Challenges & risks

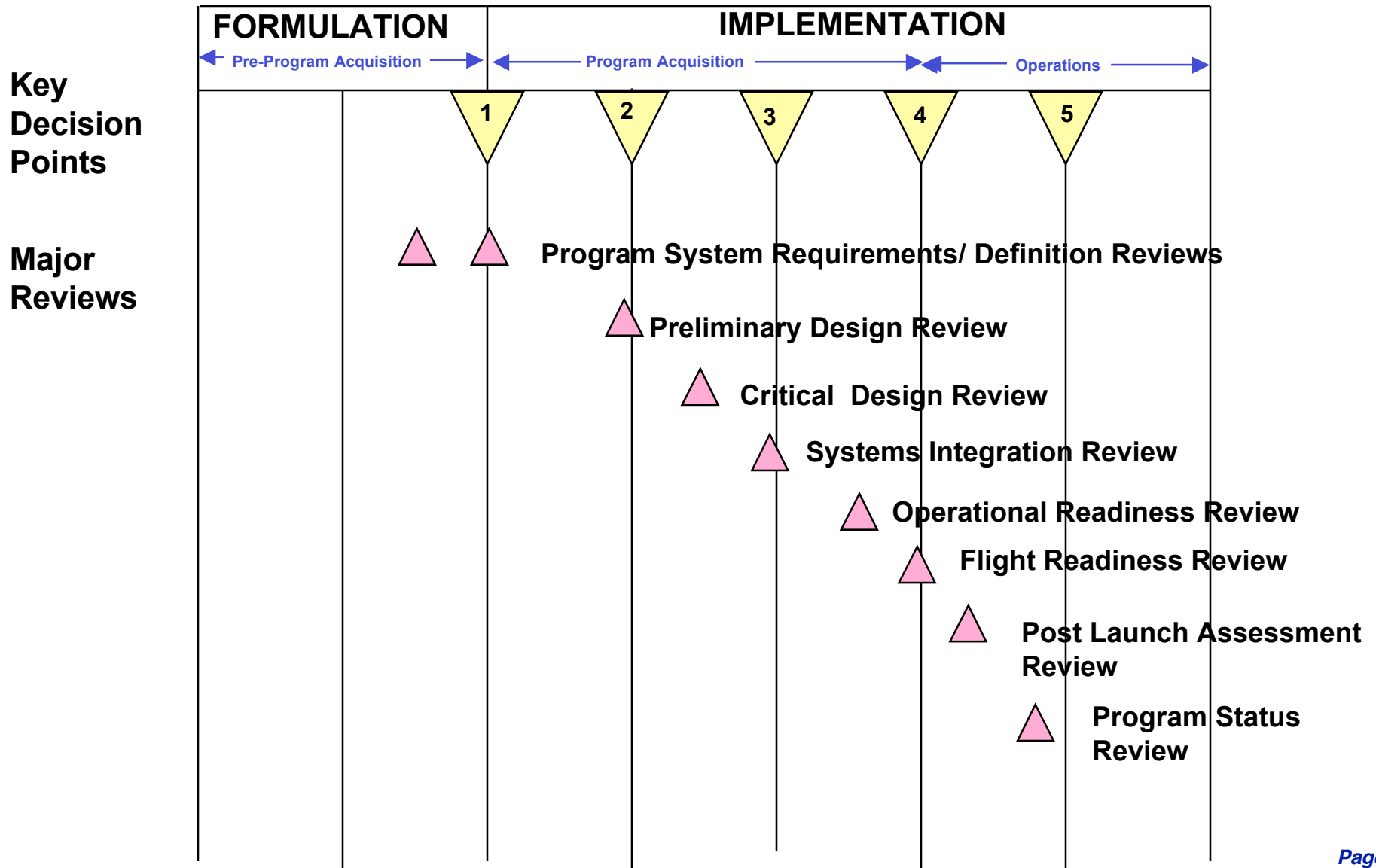


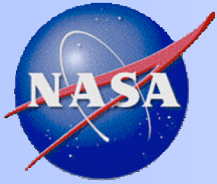
Example of An Agenda For A Milestone Review (Cont.)

- **Integrated system (e.g., power) state & status for each area**
- **I & T**
- **S&MA**
- **Human rating**
- **Risk**
- **Schedule**
- **Cost**
- **Wrap-up**

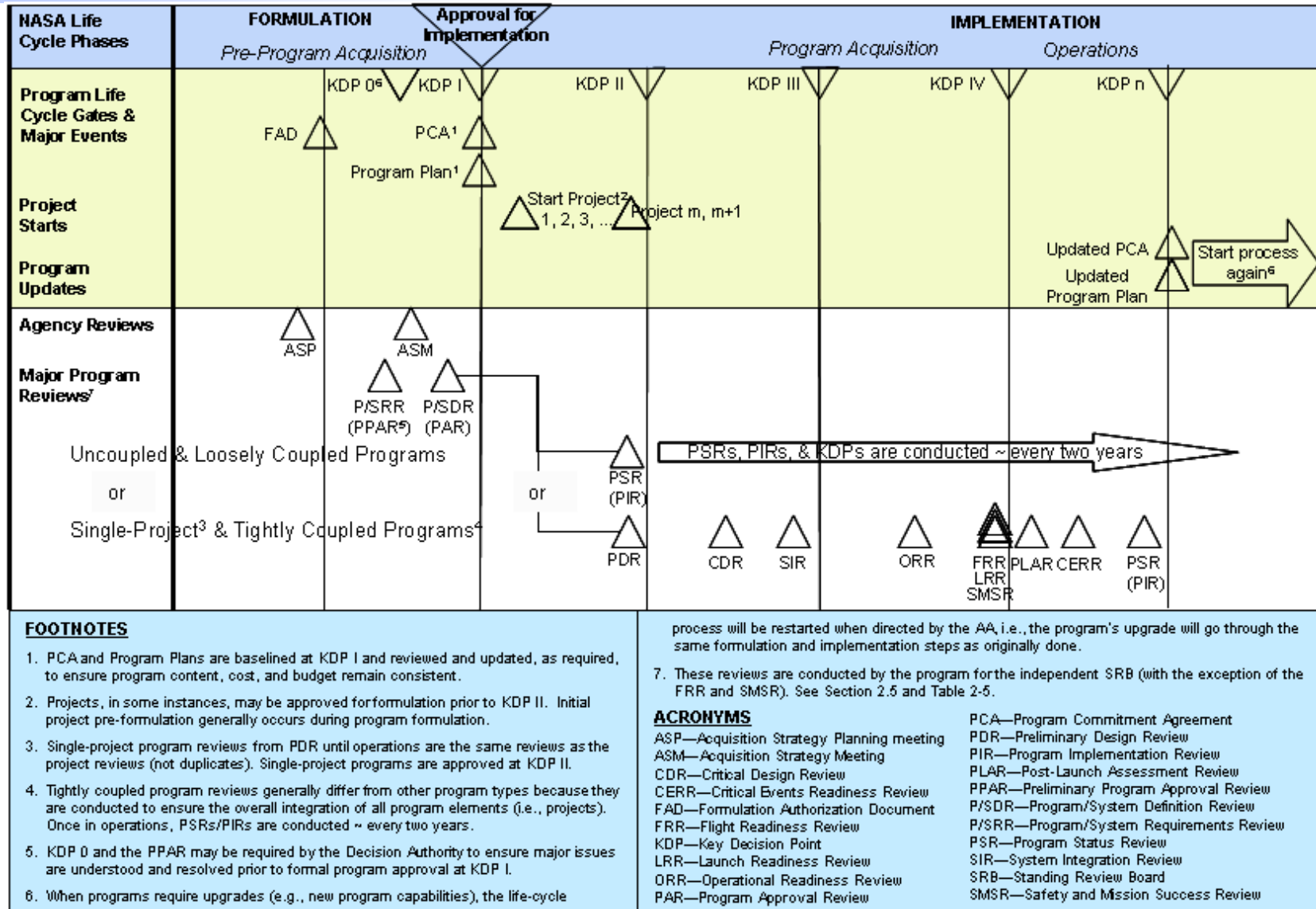


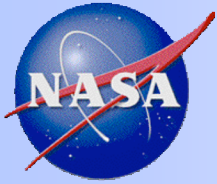
Program Life Cycle Simplified





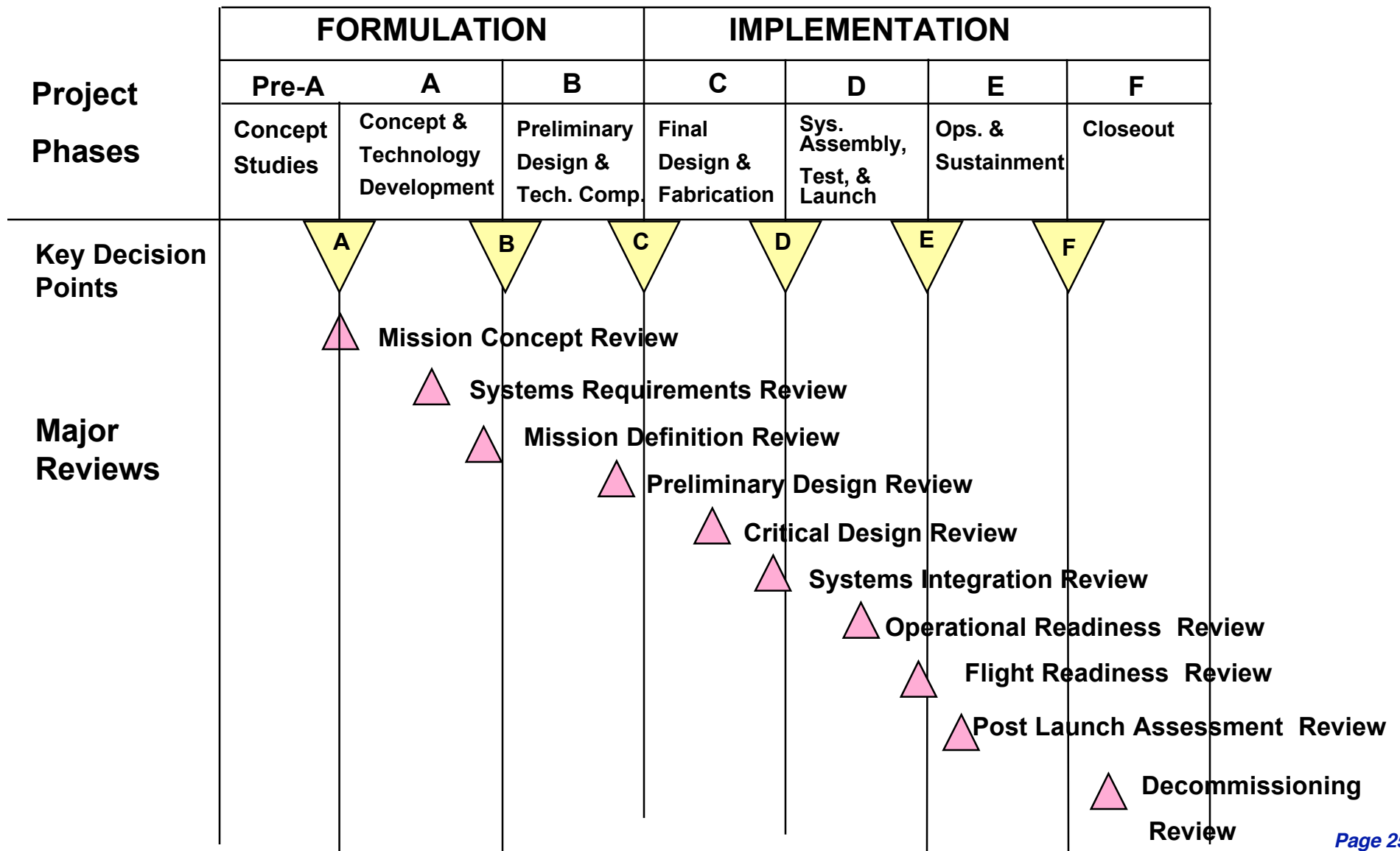
Program Lifecycle

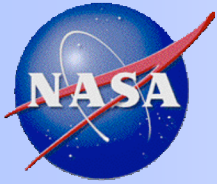




Project Life Cycle

Simplified





Project Lifecycle

