



KENNEDY SPACE CENTER



Industry Day Briefing Vehicle Assembly Building High Bay 2 And Mobile Launcher Platforms

June 30, 2015



Agenda

12:00-12:05

Welcome – Steve Cain

12:05-12:15

Opening Remarks – Scott Colloredo

12:15-1:00

AFP – Dave Cox

1:00-2:00

VAB High Bay 2 Tour (optional) – Jim Bolton

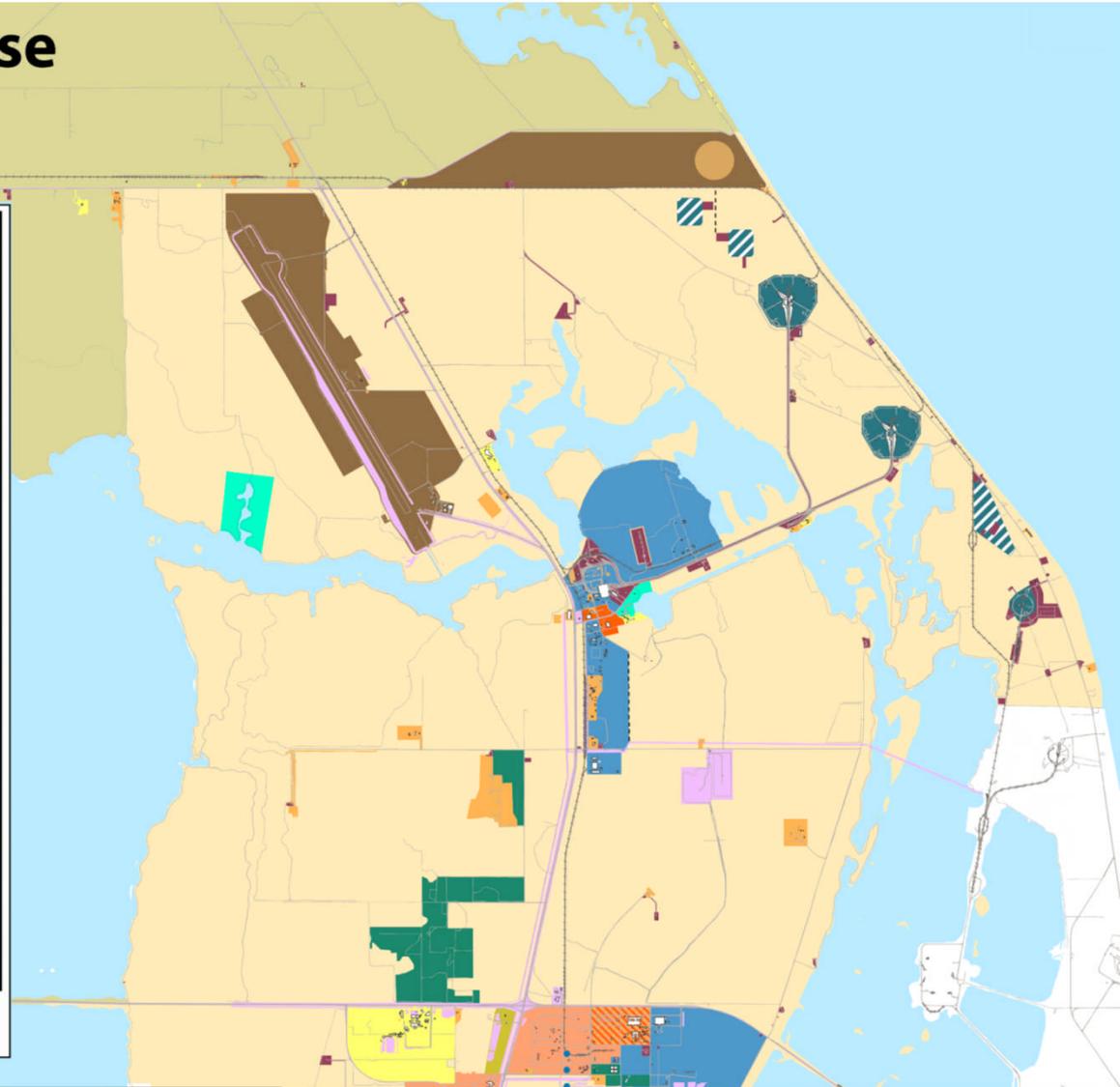
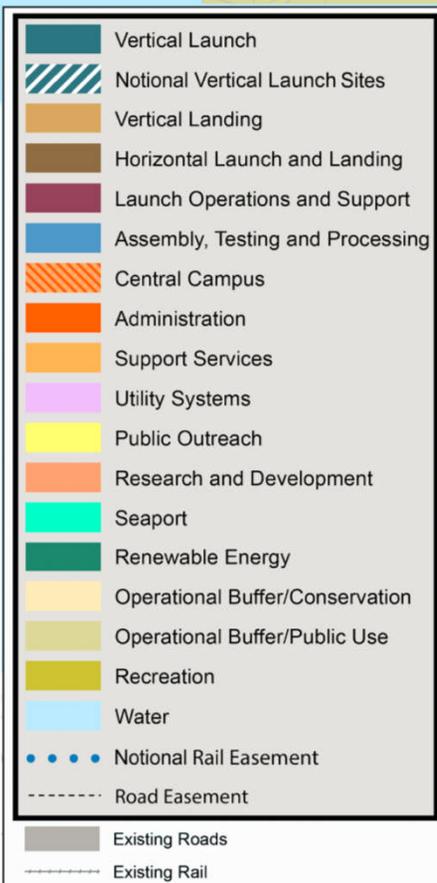
2:00-3:00

MLP 3 in HB 1 Tour (optional) – Andy Swift

3:00-4:00

Q & A Wrap Up in Conference Room – Dave Cox

Future Land Use



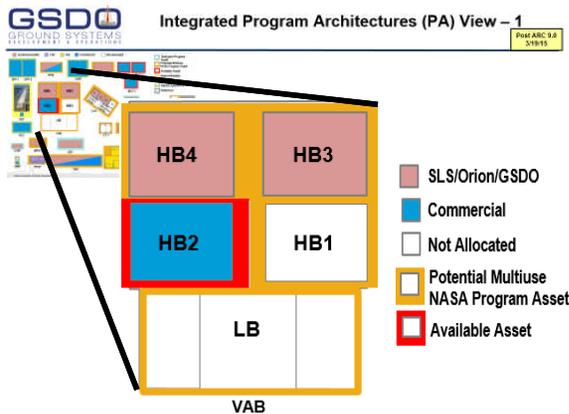
<http://masterplan.ksc.nasa.gov/Intro/Future-Development-Plan/Asset-Plan/Overview>

KSC from Space

<https://www.youtube.com/watch?v=etn8xzF3iz0&feature=youtu.be>



VAB HB2/MLPs AFP Background



- ◆ The Vehicle Assembly Building (VAB) is a unique National asset due to its extremely high vertical stacking capability with proximity to heavy lift vertical launch sites and the Shuttle Landing Facility (SLF)
- ◆ The VAB is funded by the Ground Systems Development and Operations (GSDO) Program and High Bay 3 (HB3) is currently being modified to support Space Launch System (SLS) activities
- ◆ High Bay 2 (HB2) is anticipated to become available for commercial use in June 2016. Other portions of the VAB may become available in the coming years
- ◆ An Announcement for Proposals (AFP) is the means being used to competitively announce VAB HB2 availability and potentially select user(s)
- ◆ Due to their integrated architecture, the former Shuttle Mobile Launcher Platforms (MLPs) 1, 2, & 3 are being made available in conjunction with the VAB HB2 AFP

AFP Process Overview

AFP Process Objectives

Competitively announce and solicit potential VAB HB2 / MLP user(s) in support of the Government objectives

Ensure fairness that all potential users are given equal opportunity to compete

Potentially select Partner(s) and enable asset(s) usage

AFP Process Flow

Develop & Release

- Obtain Authority to Proceed with AFP and establish Team
- Develop AFP and specific asset use Model Agreement / Terms and Conditions
- Release Synopsis and AFP

Receive & Evaluate Proposals

- Receive and perform initial proposal evaluations
- Perform Due Diligence (if needed)
- Receive and evaluate final proposals

Select & Execute

- Selection Decision
- Finalize Agreement(s)
- Make Selection Announcement

VAB HB2/MLPs AFP Timeline

- ✓ **Potential VAB use included in Kennedy Space Center Notice of Availability – January 2011**
 - VAB established as potential “shared use” facility
- ✓ **MLP Request for Information (RFI) issued in August 2013**
 - Multiple commercial space use responses received
- ✓ **VAB HB and MLPs AFP approach Authority to Proceed – February 2014**
 - Restricted to the Commercial Space Launch Act (CSLA) applicable activities
- ✓ **Initial Synopsis Release – November 14, 2014**
- ✓ **Revised Synopsis Release – June 12, 2015**
- ✓ **AFP Release – June 15, 2015**
 - Includes HB2 Use Model Agreement and MLP Loan Terms and Conditions

- Question and Answer Period – June 16 - July 8, 2015**
- Industry Day – June 30, 2015**

- Proposals Due – July 31, 2015**
- Potential Selection – targeted Fall 2015 (pending evaluations)**

- ❖ **VAB HB2 available for commercial use – June 2016**

- ◆ **The Government objectives for this AFP are:**
 - Increase commercial access to space;
 - Enhance U.S. commercial competitiveness in the space launch industry;
 - Maximize use of the VAB HB2's unique capabilities;
 - Maximize use of other available KSC assets; and
 - Promote public-private partnerships to build, expand, modernize, or operate space launch and reentry infrastructure.

- ◆ **The VAB HB2 is the primary asset offered for reutilization under this AFP. NASA has determined that three (3) Mobile Launcher Platforms (MLPs) are available, as secondary assets under this AFP.**

- ◆ **NASA will not consider proposals for non-aerospace use of VAB HB2 or MLPs or those that do not otherwise contribute to enabling the commercial use of space.**

AFP Summary of Proposal Evaluation Factors

- ◆ **Describe their technical approach for the use of VAB HB2 (and MLP(s), if requested), including the intended concept of operations, the ground systems architecture, plan for maintaining compatibility with NASA activities, and approach for safe and environmentally sustainable operations;**
- ◆ **Describe their overall financial capability to establish the intended ground system architecture and utilize VAB HB2 (and MLP(s), if requested). Propose, and financially justify, a start date and term for the resulting agreement;**
- ◆ **Describe their experience with flight hardware integration and ground system operations or other projects or programs that are relevant;**
- ◆ **Describe how their proposal furthers the Government objective for this AFP; and**
- ◆ **If applicable, describe their concept of operations, overall financial capability, and related experience to utilize one or more MLPs without use of VAB HB2.**

Proposers shall describe their approach to successfully develop, operate, and maintain VAB HB2 (and MLP(s), if requested) as commercial space launch processing/testing asset(s).



Section III. Instructions

Use of the VAB HB2 (and MLP(s), if requested)

- a. Proposers shall describe a fully integrated concept of operations for all activities at KSC, including proposed operations, processing schedules, planned periods of inactivity, and proposed launch/use manifest. The proposed use of other NASA assets not included in this AFP should be addressed in the concept of operations description, *e.g.*, Crawler Transporter, Launch Pad.
- b. Proposers shall include information demonstrating the proposed operations, manifest and architecture in VAB HB2 will be compatible with other activities in the VAB, including Space Launch System (SLS)/Orion operations.
- c. Proposers shall describe approaches to safe and environmentally sustainable operations. Proposers shall describe in detail the prevention and mitigation of possible impacts due to hazardous commodities (including types and quantities thereof) planned as part of proposed operations. Proposers shall describe identified risks and mitigations to their flight hardware and other flight hardware operations such as SLS/Orion processing within the VAB. Proposers shall describe details on prevention of potential environmental and safety hazards beyond VAB HB2 which may affect other operations and users at KSC or the Cape Canaveral Air Force Station (CCAFS).
- d. Proposers shall describe how the concept of operations and planned use will further the Government objectives.

Section IV. Evaluation

Assessment of Planned Use

- NASA will evaluate the Proposer's concept of operations for the utilization of VAB HB2 (including planned appropriate uses and frequency of use with or without MLP(s)) for integration and test activities required to assemble and verify launch vehicle readiness.
- NASA will evaluate the Proposer's compatibility with the surrounding facilities and NASA activities including the Proposer's planned concept of operations, including the manifest and architecture.
- NASA will evaluate the Proposer's identified environmental and safety hazards, including the adequacy of the Proposer's planned prevention, mitigation, and controls to those hazards in order to protect NASA personnel and property.
- NASA will evaluate the extent to which the proposal furthers the Government objectives.

Section III. Instructions

Plans for VAB HB2 (and MLP(s), if requested) Modifications:

Proposers shall describe all planned modifications or additions to VAB HB2 (and MLP(s), if requested), and provide an outline of their operational ground systems architecture and interfaces. This description shall include details for modifying existing ground systems, launch systems, and installation of new equipment. Proposers shall include their schedule for modifications, including periods of inactivity, and the estimated cost of the planned modifications.

Section IV. Evaluation

Assessment of Planned Modifications

- **NASA will evaluate the feasibility and compatibility of the Proposer's planned modifications to VAB HB2 (and MLP(s), if requested), as well as ground systems architecture and interfaces.**

Section III. Instructions

Proposers shall describe their financial capabilities to successfully achieve and sustain operations as proposed. With reference to the concept of operations and plans described in the Technical Approach, Proposers shall provide the following business and financial information, as applicable:

- A demonstrated business case, including projected launch manifest, operations, and market analysis.
- Planned operational budget and capital phasing plans (for modifying and activating the VAB HB2) provided as a rough order of magnitude (ROM), phased by year, rounded to the nearest million dollars, for all planned or expected costs to develop and operate the VAB HB2 (and MLP(s) if requested).
- Sources of capital to meet budget requirements for all planned or expected costs to develop and operate the VAB HB2 (and MLP(s) if requested).
- Recommend and substantiate a start date and term of the agreement.

Proposers shall provide Financial Statement(s) for the two most recent company fiscal years. Proposers may also submit additional supporting financial documentation (*e.g.*, Annual Reports, Balance Sheets, Income Statements, Statements of Retained Earnings, Statements of Cash Flows, Audit Reports) demonstrating the overall financial capabilities and health of the company.

Proposers shall reference the VAB HB2 Use Model Agreement (Attachment B) (and MLP Loan Terms and Conditions (Attachment C), if applicable), to this AFP and provide an acknowledgement of those terms as part of their proposals. NASA expects Proposers to agree to the VAB HB2 Use Model Agreement (Attachment B) and MLP Loan Terms and Conditions (Attachment C). If proposing changes, additions, or deletions, Proposers shall include sufficient rationale and shall state whether the proposal is contingent upon NASA accepting the proposed revisions. *NOTE: VAB HB2 \$100M insurance requirement will be amended to \$TBD pending con-ops evaluation.*

Proposers are advised that NASA may consider and evaluate any other financial data obtained from other sources and use the obtained information in the evaluation of the Proposers' financial capability.

Section IV. Evaluation

- NASA will evaluate Proposer's financial ability to achieve and sustain operations involving VAB HB2 (and MLP(s) if requested).
- NASA will evaluate the Proposer's demonstrated business case to commence and perform operations in VAB HB2, including its projected launch manifest, operations, and market analysis.
- NASA will evaluate the Proposer's operational budget, capital phasing plan, source(s) of capital and overall financial health.
- NASA will evaluate the Proposer's requested start date and term of agreement as substantiated by the concept of operations.
- NASA will evaluate Proposer's acceptance of the VAB HB2 Use Model Agreement (Attachment B) and, if requesting MLP(s), MLP Loan Terms and Conditions (Attachment C). Any proposed changes, additions, deletions and supporting rationale will be evaluated to determine the acceptability to NASA.

Section III. Instructions

Proposers shall describe their experience with development of integrated spacecraft/launch vehicle testing, processing, and ground systems operations. Proposers shall include a description of technical experience for large scale complex projects. Proposers shall include descriptions of their past experience working in a multi-user operations environment.

Proposers are advised that NASA may consider and evaluate any other data on the Proposers' experience obtained from other sources and use the obtained information in the evaluation of the Proposers' past experience.

Section IV. Evaluation

- **NASA will evaluate the Proposer's experience with spacecraft/launch vehicle processing and with ground system operations and/or work performed on similar projects or programs for past success and demonstrated abilities. NASA will evaluate the Proposer's technical experience with large scale complex projects and working in a multi-user environment for past success and demonstrated abilities.**

Section III. Instructions

This section shall be completed by Proposers interested in use of an MLP or MLPs without use of VAB HB2. Proposers shall describe the following:

Technical Approach – Proposers shall describe the number of requested MLP(s) (1–3). Proposers shall describe their concept of operations, planned modifications, and schedule.

Financial Capability – Proposers shall describe their financial capabilities to successfully achieve and sustain MLP operations as proposed. Proposers shall provide the following business case information tailored to the proposed use of the MLP, as applicable: projected launch/use manifest, operations, marketing, capital phasing plan, sources of capital, start date, and term of loan.

Proposers shall reference MLP Loan Terms and Conditions (Attachment C) and provide an acknowledgement of those terms and conditions as part of their proposals. If proposing changes, additions, or deletions to the terms and conditions, Proposers shall include sufficient rationale for those changes, additions, or deletions and shall state whether the proposal is contingent upon NASA accepting the proposed revisions. A separate real property agreement will be required for storage or use of an MLP outside of VAB HB2.

Experience – Proposers shall describe their related experience(s) with modifying and maintaining ground support equipment and systems in support of flight operations.

Section IV. Evaluation

Factor 1: Technical Approach

- NASA will evaluate the Proposer’s concept of operations for use of the MLP(s), planned modifications and schedule for compatibility with the NASA objectives.

Factor 2: Financial Capability

- NASA will evaluate Proposer’s financial ability to achieve and sustain operations involving the MLP(s).
- NASA will evaluate the Proposer’s demonstrated business case, including its projected launch/use manifest, operations, marketing, and capital phasing plan.
- NASA will evaluate the Proposer’s requested start date and term of loan as substantiated by the concept of operations.
- NASA will evaluate the Proposer’s acceptance of the MLP Loan terms and conditions set forth in MLP Loan Terms and Conditions (Attachment C). All proposed exceptions will be evaluated to determine acceptability to NASA.

Factor 3: Experience

- NASA will evaluate the Proposer’s experience with modifying and maintaining ground support equipment and systems in support of flight operations.

Announcement for Proposals (AFP) Evaluation Process



AFP Process

Evaluation of Proposals

SA = Selecting Authority

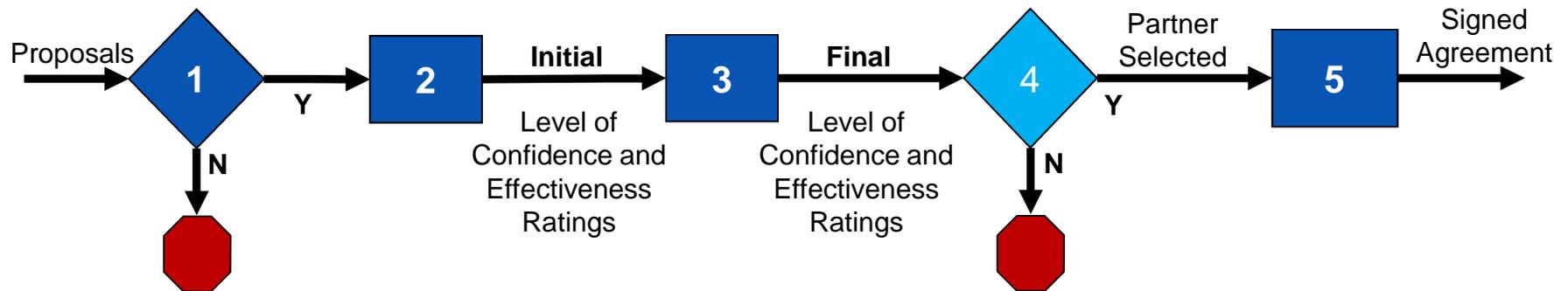
EP = Evaluation Panel

2 - Initial Evaluation

- Technical Approach
- Financial Capability
- Experience

4 – Selection Decision

- Selection Statement with Rationale for Decision



1 - Acceptability Screening

- Compliance w/AFP Instructions
- Proposal contains sufficient information to evaluate against the stated evaluation factors

3 - Due Diligence (if needed)

- Potential down-selection to most highly rated proposals
- Disclosure of Findings
- Discuss Weaknesses and Clarifications
- Face-to-face forum; followed by written proposal revisions
- Final evaluation and ratings

5 - Finalize Agreement

- Terms and Conditions

AFP Process Evaluation of Proposals

- ◆ Evaluation Panel assesses each proposal and determine **findings** (strengths and weaknesses)
- ◆ Technical Approach factor rated for **level of effectiveness**, from very low (red) to very high (blue)
- ◆ Financial Capability and Experience factors rated for **confidence level**, from low to high
- ◆ Evaluation Panel results briefed to Selection Authority for decision

Color	Criteria
B	Very High Level of Effectiveness: The proposal is very highly effective in meeting the government objective.
G	High Level of Effectiveness: The proposal is highly effective in meeting the government objective.
W	Moderate Level of Effectiveness: The proposal is moderately effective in meeting the government objective.
Y	Low Level of Effectiveness: The proposal has low effectiveness in meeting the government objective.
R	Very Low Level of Effectiveness: The proposal has very low effectiveness in meeting the government objective.

Confidence	Criteria
High	The proposal demonstrates that the Proposer is very likely to successfully perform the proposed effort.
Medium	The proposal demonstrates that the Proposer is likely to successfully perform the proposed effort.
Low	The proposal demonstrates that the Proposer is less likely to successfully perform the proposed effort.

A KSC ombudsman has been appointed to hear and facilitate the resolution of concerns from Proposers, potential Proposers, and Partners during the pre-selection and post-selection phases of this activity. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the Agreement Officer, the Proposal Evaluation Panel, or the Selection Authority. Further, the ombudsman does not participate in the evaluation of proposals, the selection process, or the adjudication of formal disputes. Therefore, before consulting with the ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the Agreement Officer for resolution.

- ◆ **VAB HB2 Use Agreement (Model Agreement provided in AFP)**
 - Includes associated Institutional Services

- ◆ **MLP Loan (specific Terms and Conditions provided in AFP)**
 - **With or without VAB HB2**
 - Without VAB HB2 would require long term Real Property agreement via Land Use AFP / NOA

- ◆ **Associated Services Agreements**
 - **KSC “Demand” services such as:**
 - VAB Cranes/Doors
 - Crawler Transporter

 - **Temporary Use of other KSC Real Property such as:**
 - MLP Park Site
 - LC-39 Turn Basin
 - Pad LC-39B

VAB Multi-use Integration

Area

Activity

Coordination

High Bay

Independent Operations within dedicated HB area:

No constraints to Programs when minor hazard clear is within dedicated area

Common Area

Use of Common Area or Shared Use Equipment:

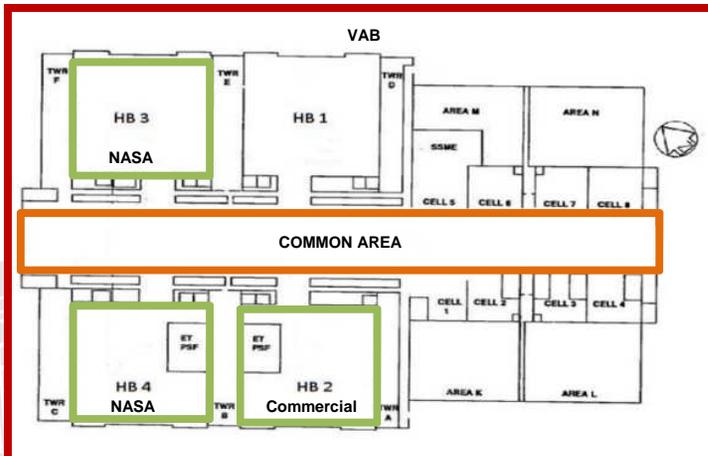
Requires Coordination (such as crane activity, transfer isle usage, etc.)

VAB

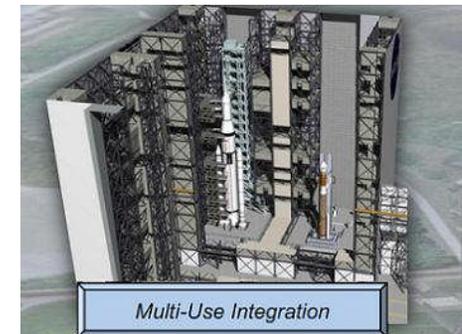
Major Hazard Clear: Only one Program activity at a time due to explosive commodity active processing (= per shift conflict), or if combined Program quantities would exceed facility siting (= per flow conflict)*

All Hazardous and use of Common Area / Shared Use Equipment activities must be included on VAB Integrated Schedule and de-conflicted at routine scheduling meetings, with NASA having choice to exercise priority

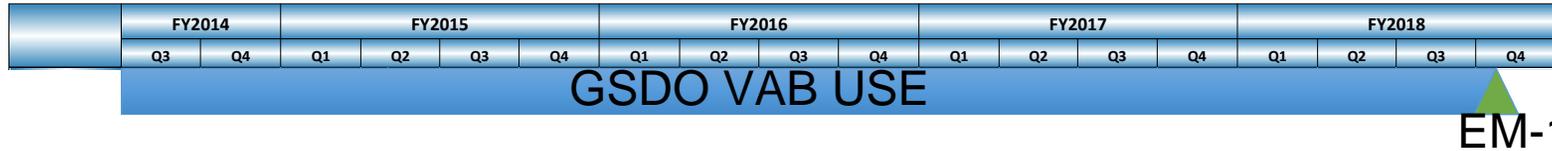
(e.g. NASA activity on 1st shift – Commercial activity on off shift; Commercial Partner schedules explosive commodity processing after NASA's explosive commodity departs facility)



* **NOTE:** Shuttle Program VAB siting has expired and any new Program hazards (including SLS) will need to be appropriately sited with Life Safety Code compliance and mitigations approved by the KSC Authority Having Jurisdiction



GSDO Near-term Facility Schedule



- ◆ GSDO will be using the VAB throughout the time for support of EM-1
- ◆ Details will be provided to selected Partner as a part of the normal scheduling coordination efforts as it relates to their using of HB-2



[SLS VAB Operations Video Link](#)



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Questions/Comments

