

# 21<sup>st</sup> Century Space Launch Complex Architectures Overview French Trade Briefing

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21 March 2011

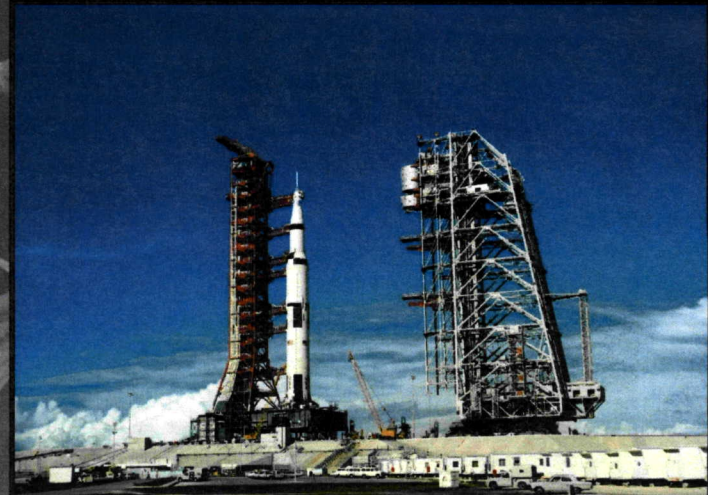




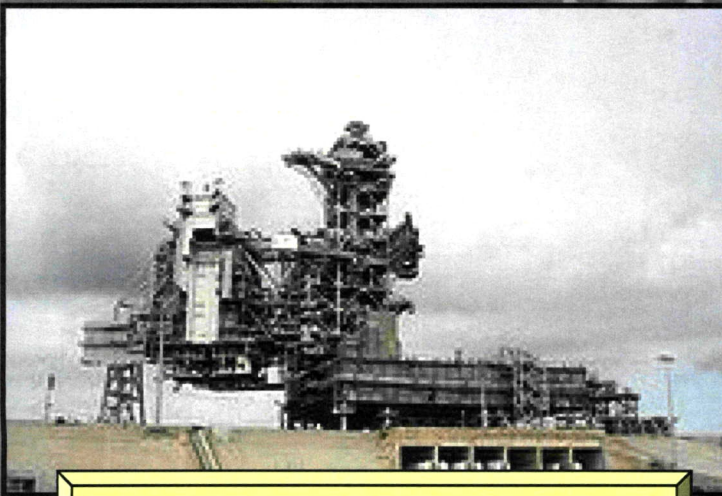
# 21st Century Space Launch Complex Kennedy Space Center, 1950 - 2020



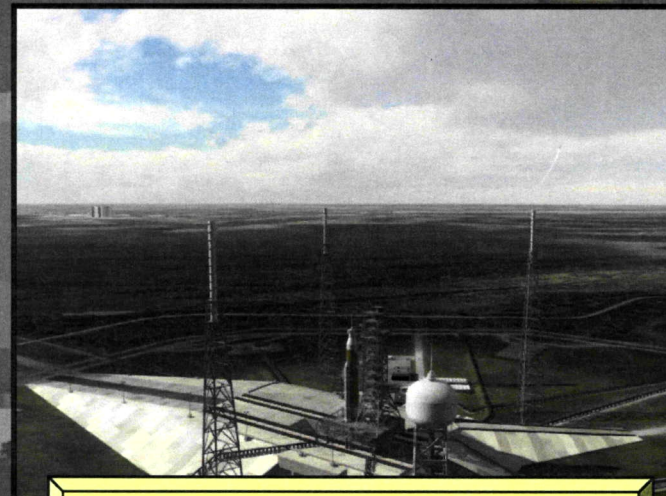
1950's  
ICBM Row



1970's  
Saturn V - Launch Complex 39



1980's - 2000's  
Space Shuttle - Launch Complex 39



2010's  
21st Century Space Launch Complex



21<sup>st</sup> Century Space Launch Complex  
*The Art of the Possible*

21<sup>ST</sup> CENTURY SPACE LAUNCH COMPLEX

*Kennedy Space Center*

*May 2010*

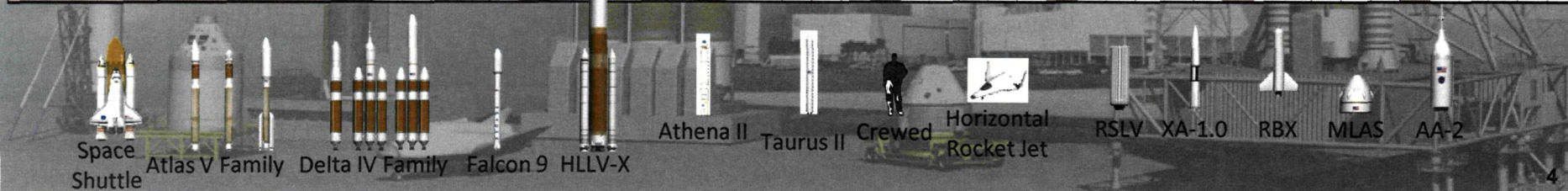




# 21<sup>st</sup> Century Space Launch Complex

## A Notional Launch Manifest

	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
<b>KSC LC-39</b>								
<b>CCAFS SLC-40</b>								
<b>CCAFS SLC-41</b>								
<b>CCAFS SLC-37</b>								
<b>CCAFS SLC-36</b>								
<b>CCAFS SLC-46</b>								
<b>KSC SLF</b>								

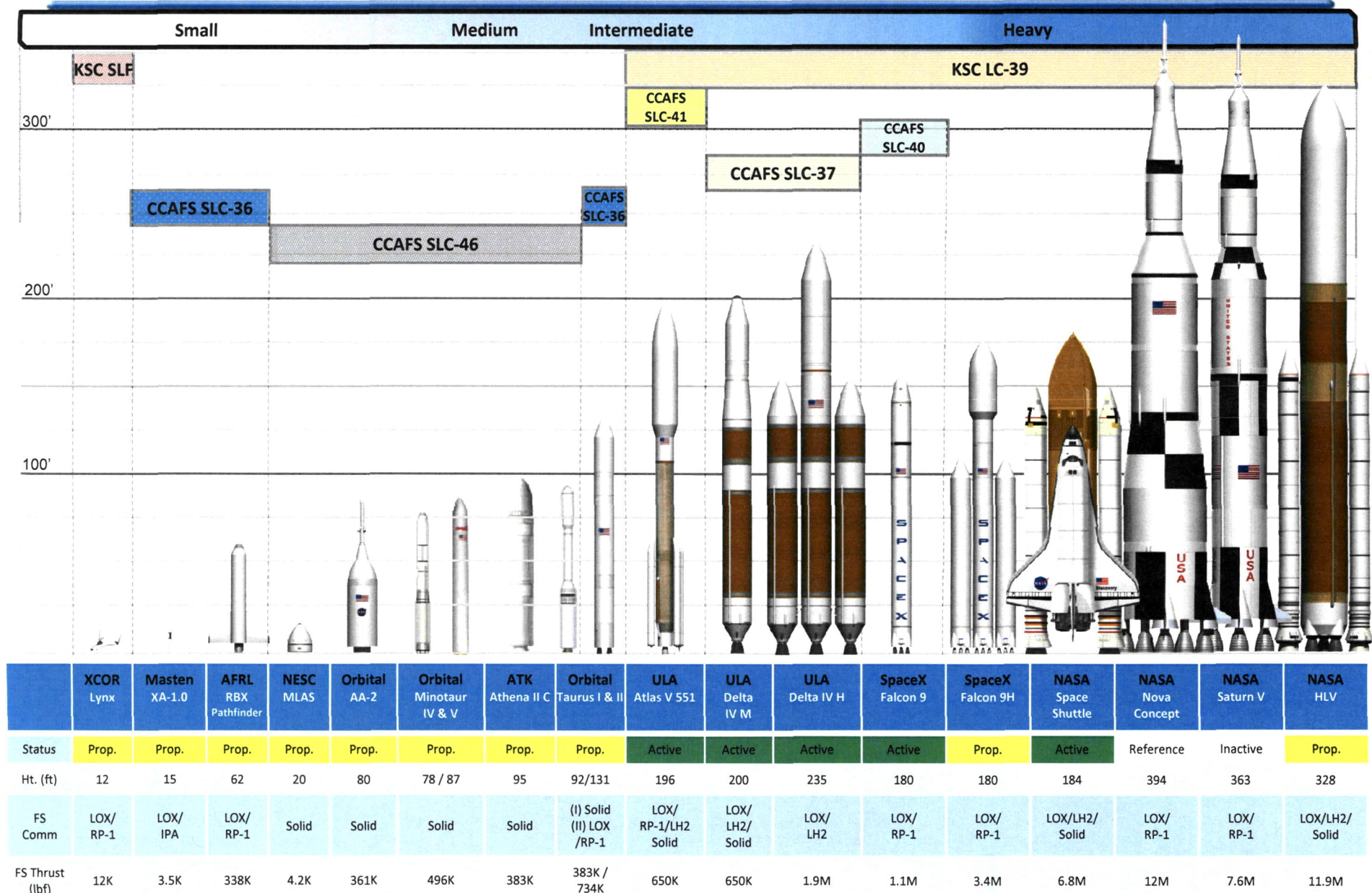






# 21<sup>st</sup> Century Space Launch Complex

## A Launch Capability for Every Vehicle

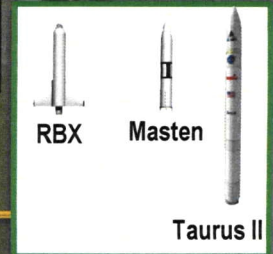
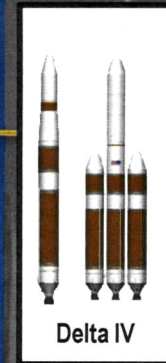
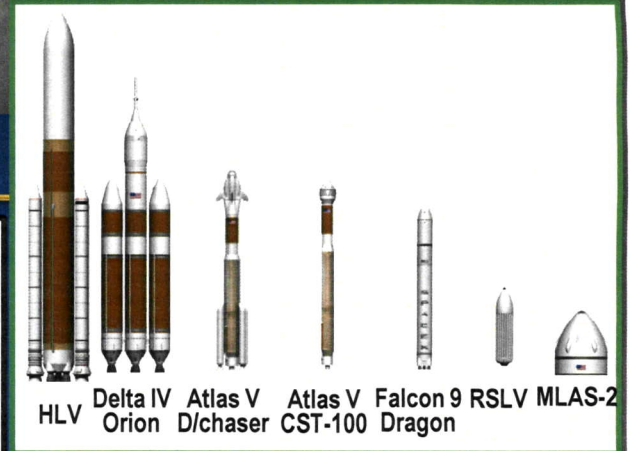
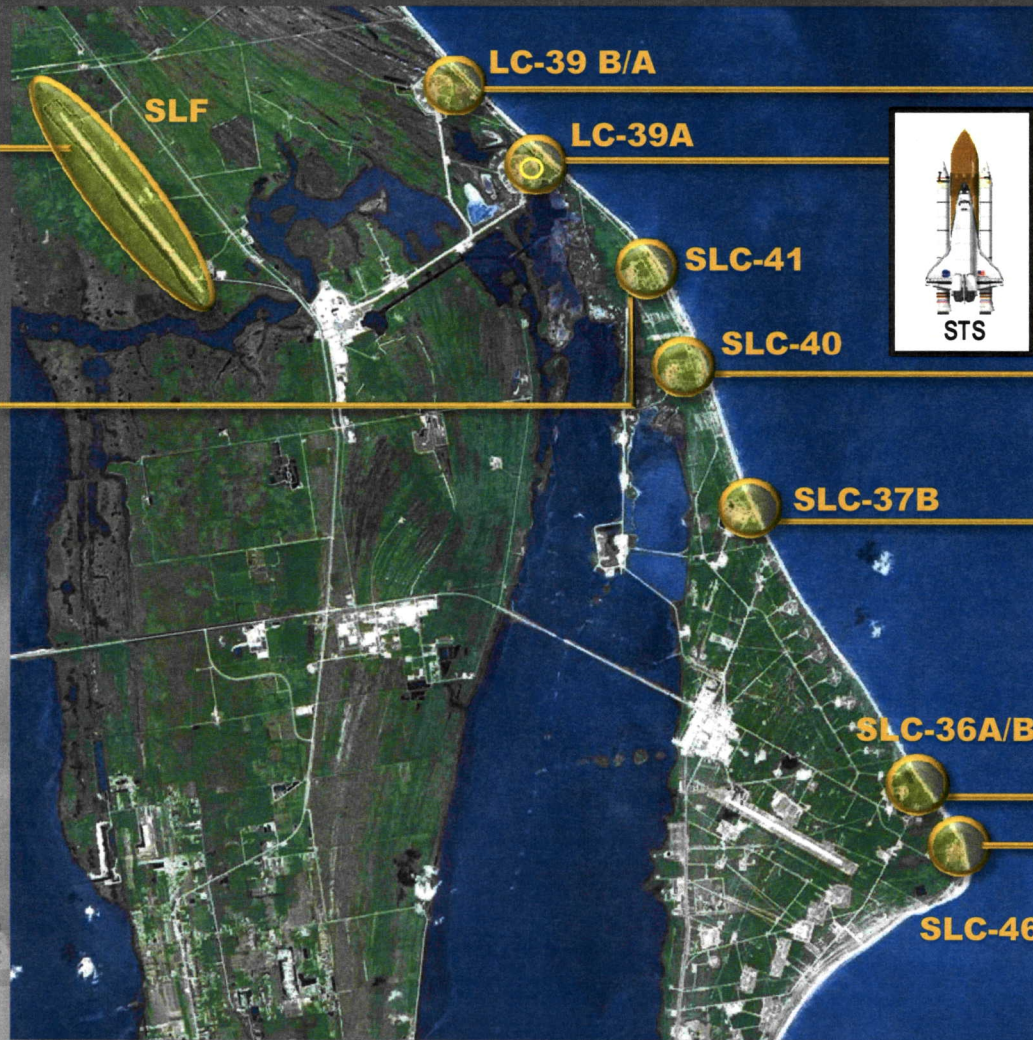
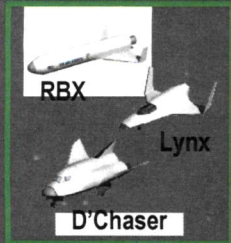




# 21<sup>st</sup> Century Space Launch Complex A Launch Site for Every Vehicle

Active

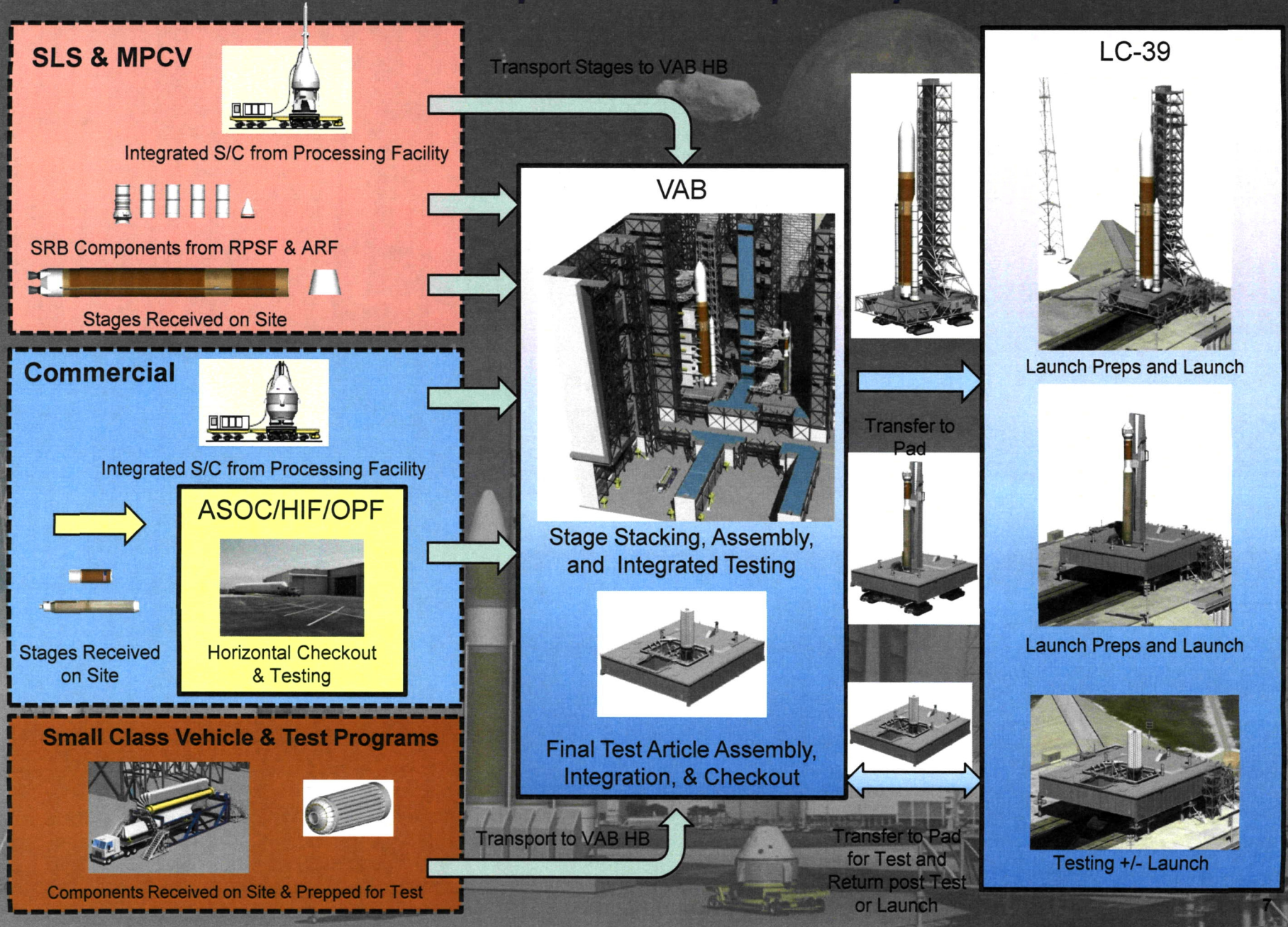
Potential





# 21<sup>st</sup> Century Space Launch Complex

## Launch Complex 39 Concept of Operations



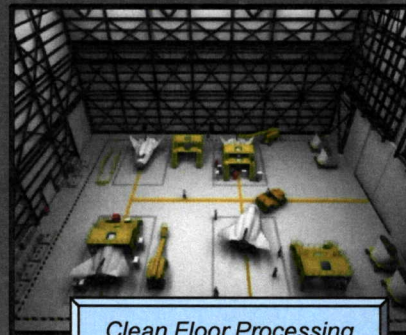


# 21<sup>st</sup> Century Space Launch Complex

## *A Flexible Approach*



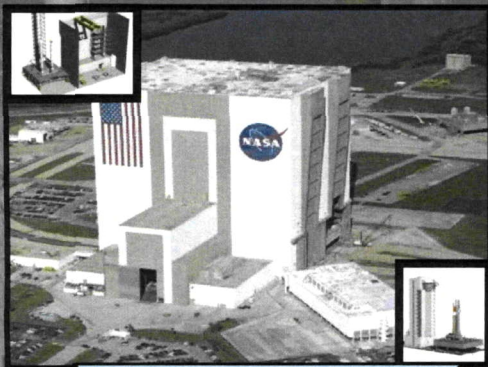
Horizontal Launch & Landing



Clean Floor Processing



Small Vehicle Launch



Multi-Use Integration



Heavy Class Launch Capability



Flexible Launch Capability



# 21<sup>st</sup> Century Space Launch Complex Command & Control Strategy

Welcome to the Florida Spaceport

Today is Tuesday April 14, 2020

Commercial Crew launch from Pad 39-B to ISS at 8:47 AM ON TIME

Mars Communications Satellite launch from Pad 41 at 1:13 PM ON TIME

Commercial satellite launch from Pad 37 at 6:35 PM ON TIME

Tomorrow April 15, 2020

Space Hotel passenger launch from Pad 39-A at 11:00 AM ON TIME

Notice: Use of Virtual Reality sensory implants while traveling on Florida's Spaceport is illegal



Enabling Capabilities Catalog



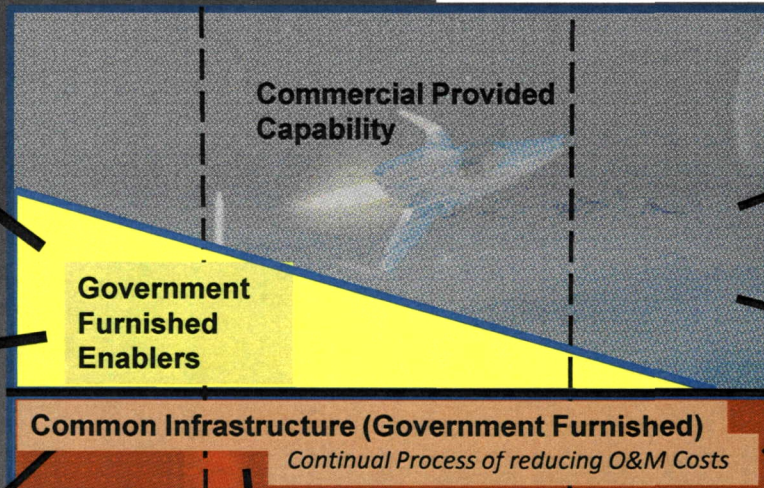
Support SLS\* Development & Test

\*Space Launch System (SLS)



Customer PAD-B GSE

Transform Launch Control to small projects that provide basic capability when needed



Virtual Customer



Customer Brings own C&C

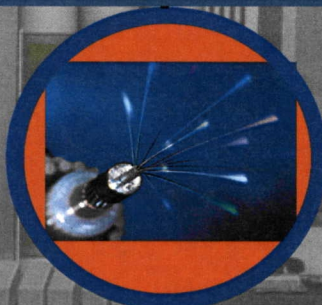


Unproven Technology

Payload Launch Experience

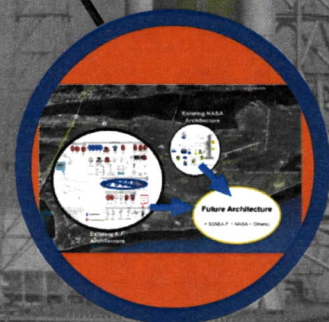
Critical Payload Launch Experience

Commercial Provider Maturity



Integrated Network Services

Increased Range Capacity & Flexibility



**Government Core Capabilities for safety and risk mitigation**



# 21<sup>st</sup> Century Space Launch Complex Summary

## ◆ Features of a 21st Century Space Launch Complex

- Flexibility to support evolving launch vehicles and spacecraft
- Standard interfaces to support multiple customer needs
- Enhanced Range capacity and flexibility
- Reconfigurable processing areas and control rooms
- Revitalized infrastructure

## ◆ KSC is open for Business

- Continuing to work with industry to better understand needs and potential requirements
- Gaining understanding of evolving requirements from Commercial Customers
- Implementing technologies to overcome constraints for flexible, multi-use concepts and cost sharing
- Collaborating with NASA, DoD and commercial Programs

