

NSSL Phase 3 Industry Day

20 July 2023





Industry Day Agenda

20 Jul	Topic	Speaker	Duration	Location
730	30 MIN CHECK-IN			GCC
800	Intro / Admin Details	Col Chad Melone	5 min	GCC
805	Rules of Engagement	Capt Bryan Smith	10 min	GCC
815	Opening Remarks	Brig Gen Panzenhagen	10 min	GCC
825	Introductions and AATS/NSSL Overview	Col Douglas Pentecost	10 min	GCC
835	Updates to Phase 3 draft RFPs #2	Col Chad Melone	10 min	GCC
845	Phase 3 Lane 1 dRFP Changes	Maj Joe Bacon	15 min	GCC
900	Lane 1 Tiered Mission Assurance	Mr Robert Van Praet	15 min	GCC
915	Phase 3 Lane 2 dRFP Changes	Maj Ryan Watson	15 min	GCC
930	Transformative Mission Assurance	Mr Robert Allen	15 min	GCC
945	NSSL Requirements & Document Changes	Mr John Wong	15 min	GCC
1000	ODMSP	Mr David Cavazos	5 min	GCC
1005	TIRP Overview	Dr Walt Lauderdale	15 min	GCC
1020	10 MIN BREAK			GCC
1030	Security Requirements	Capt Colin Johnson	15 min	GCC
1045	Digital Ecosystem	Maj Will Deavor	15 min	GCC
1100	Spaceport of the Future SLD 30	Ms Wendi Rupp	15 min	GCC
1115	Spaceport of the Future SLD 45	Mr Andrew Duce	15 min	GCC
1130	Q&A / Closing Remarks	Col Chad Melone	15 min	GCC
1145	1 HR LUNCH > TRANSITION TO BLDG 271			
1250	Classified Threat Brief	Capt Emily Meyer	45 min	Bld 271
1335	Classified NRO Lane 1 Manifest Discussion	Capt Alex Warner	30 min	Bld 271
	TRANSITION TO CR 343 (ONE-ON-ONES)			
1410-1635	One-on-One Discussions	Phase 3 Team	45 min	CR 343
21 Jul	Topic	Speaker	Duration	
0800-1700	One-on-One Discussions	Phase 3 Team	45 min	CR 343

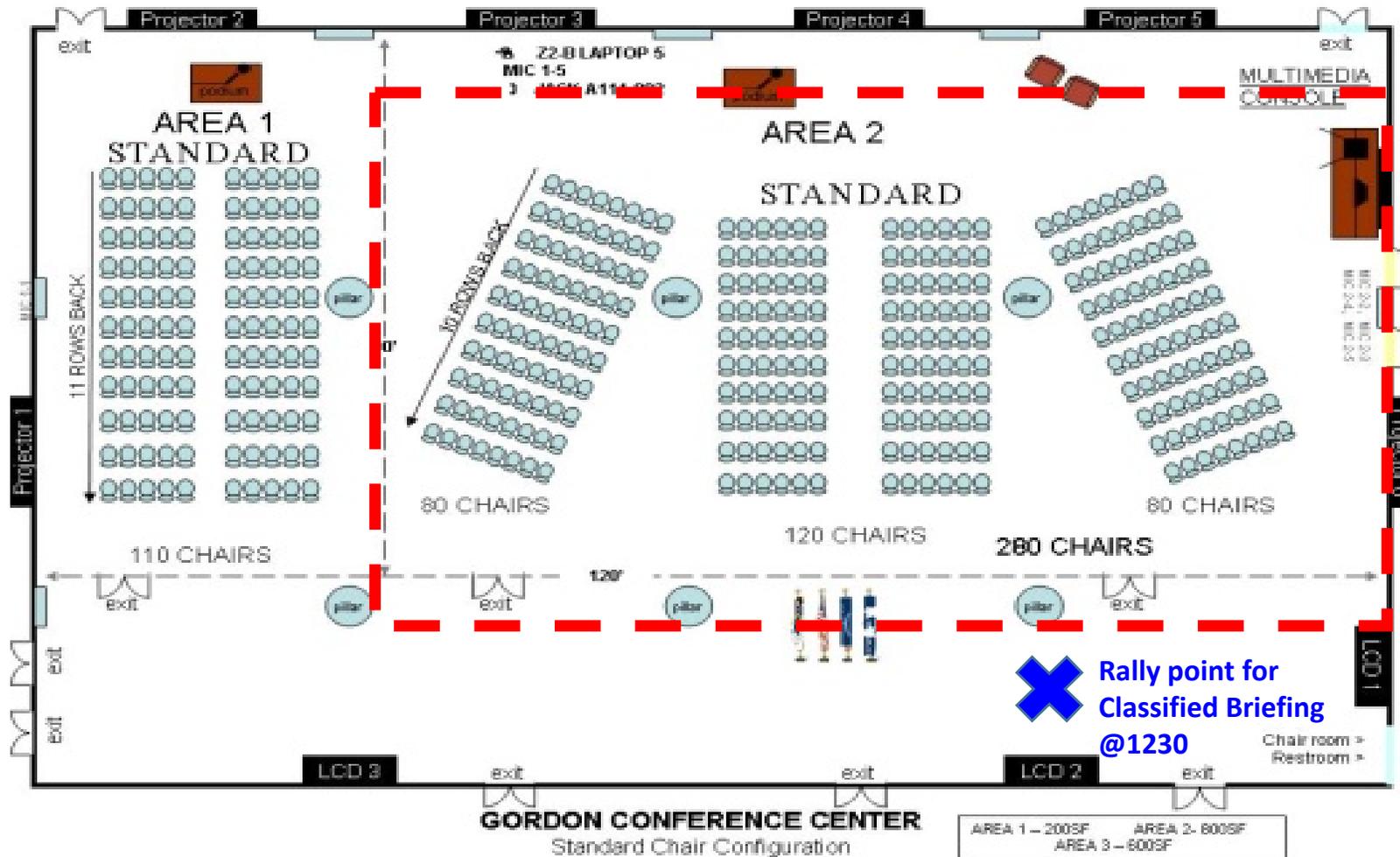


Administrative Details

- Security
 - Unclassified general briefing
 - No recording of general or one-on-one sessions
 - No photos
 - Note-taking is permissible
- SSC will provide charts after Industry Day for all attendees
- Personal devices must be left outside CR or left in car



Administrative Details (cont'd)





Rules of Engagement

Captain Bryan Smith

Contract Specialist Lane 2



Disclaimer

- Information presented is for planning purposes only and subject to change
 - Government is not seeking proposals at this time
 - Does not constitute a promise to issue a solicitation in the future
 - Does not commit the Government to contract for any supply or service
 - Government will not pay for any information or administrative costs incurred in response to this event; costs are solely at responding party's expense



Disclaimer (cont'd)

- Participation in this industry day and one-on-one discussions constitutes consent to disclosure of information to companies contracted with Space Systems Command/Assured Access to Space (SSC/AA) to provide program office support

- | | |
|----------------------------------|---|
| • The Aerospace Corporation | • ManTech International Corporation |
| • Alpha Omega Group (AOG) | • Millennium |
| • Axient | • Nynth Company California LLC |
| • Boecore, Inc | • OMNI Consulting Solutions |
| • Boyles Enterprises | • Quantum Research International |
| • Figueroa and Associates | • Science Applications International Corporation (SAIC) |
| • Integrated Data Services (IDS) | • SAVI LLC |
| • KBR (formerly Centauri) | • Stellar Solutions |
| • Liona Enterprises Inc. | • Tecolote Research Incorporated |
| | • Wallender and Associates |

- The above companies are required to provide equal protection to non-public information as the Government



Acquisition Structure

NSSL Phase 3 Leadership

Role	Name
Program Executive Officer	Brig Gen Kristin Panzenhagen
Program Manager	Col Douglas Pentecost
Senior Materiel Leader	Col Chad Melone
Materiel Leader	Lt Col Douglas Downs (inbound)

NSSL Phase 3 dRFP Contracting Team

Role	Name	Email
Contracting Officer	Kirsten Prechtl	kirsten.prechtl@spaceforce.mil
Contract Specialist Lane 1	Tyler Davis	tyler.davis.39@spaceforce.mil
Contract Specialist Lane 2	Capt Bryan Smith	bryan.smith.75@spaceforce.mil

NSSL Phase 3 dRFP Technical Team

Role	Name	Email
Lane 1 Technical Leads	Maj Joseph Bacon	joseph.bacon.6@spaceforce.mil
	Jonathan Hernandez	jonathan.hernandez.20@spaceforce.mil
Lane 2 Technical Leads	Maj Ryan Watson	ryan.watson.17@spaceforce.mil
	Capt Foster Davis	foster.davis@spaceforce.mil
	Greg Pierson	gregory.pierson@spaceforce.mil
Range POC	Scott Chappie	scott.chappie@spaceforce.mil

Note: When communicating with the Program office or the Lane leads, Offerors shall also copy the PCO and Contract Specialists



AATS and NSSL Overview

Col Douglas Pentecost

NSSL Program Manager

Space Systems Command/Assured Access to Space (SSC/AA)

Assured Access to Space

SPACE ACCESS

AATS Inherent Activities

LTRS - Range Sustainment; Materiel and Services	Operate Vandenberg SFB, Patrick SFB, Cape Canaveral SFS, Eastern and Western Ranges	Procurements; NSSL, RSLP; Multi-Mission Manifesting
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Orbital/Sub-Orbital Launches; Storage, Surveillance, and Refurbishment of Decommissioned ICBM Motors

End-to-End Mission Assurance & Fleetwide Surveillance

National Federation of Spaceports



USG and State Spaceport Collaborations



Commercial Range Ops & Business Models

Multi-Use Range Facilities; Complex Allocation

Next-Gen Range Services

Mission Lifecycle Management

SV Processing Management; Building Capacity

AATS-Level Ops Centers for Monitoring Hardware Movements and Assets



OPERATIONS INTEGRATION

Spaceports/Launch/Satellite Ops

SSC/S3 SSC Spaceflight Worthiness Certification

AATS AA3/5/8 AATS Policy, Requirements & Funding
COCOM Space Effects Integrator
DoD Mission Manifesting
AATS Program Incubator



RAPID DELIVERY

Sub-Orbital/Orbital Rapid Strategic Mobility

Rocket Cargo
AFRL Vanguard Program;
Point-to-Point Rapid Global Mobility
On-Orbit Storage and Delivery in and from Space



ORBITAL RESILIENCY

Tactically Responsive Space

Provide responsive launch for TacRS on-demand delivery of space capabilities to the warfighter through all phases of conflict



On-Orbit Servicing, Maneuver, & Debris Removal

Orbital Servicing
Remove/Replace Payloads On-Orbit;
Drive Common Standards;
Commercial Refueling Capability



Orbital Maneuver
Leverage commercial industry for on-orbit maneuvers;
Small-launch to LEO, use on-orbit stages to higher altitudes



Debris Removal
Engage and Energize Industry Solutions



The Future of Assured Access to Space



Launch Programs Key Enabler for the Space Domain

USSF launches the most critical National Security Space satellites



Nation's Eyes & Ears



Secure Comms



Positioning, Navigation & Timing



Space Domain Awareness

98 Successful NSSL Launches

Maximize On-Orbit Capability



Atlas V
(2 On Contract)
Next: Silent Barker
(29 Aug 23)



Delta IV Heavy
(1 on Contract)
Next: NROL-70
(01 Mar 24)



Falcon 9
(11 On Contract)
Next: USSF-124
(29 Sep 23)



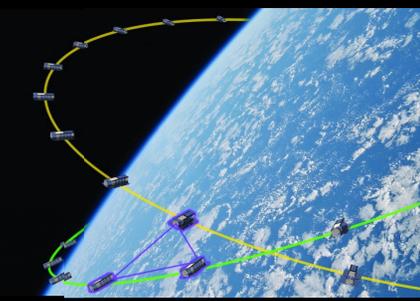
Falcon Heavy
(1 On Contract)
Next: USSF-52
(01 Sep 23)



Vulcan
(14 On Contract)
Next: USSF-106
(30 Jan 24)

>\$84B in On-Orbit Capability

Enables Resilient Space Order of Battle



Govt Mission Assurance = 100% Mission Success

Multi-Mission Manifesting

Minotaur
Next: Mk21A-2
Late 2023

Rocket 4
Next: STP-29B
3Q FY25

RS-1
Next: STP-AR1
Late 2024

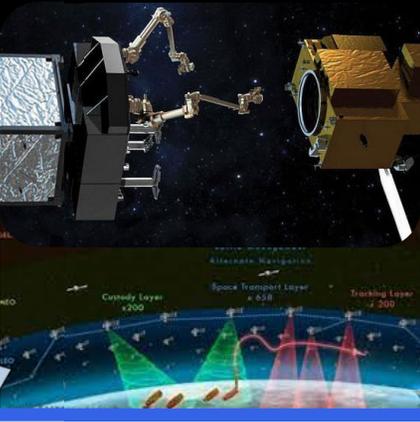
Alpha
Next: TacRS-3
NET Jul 23



Ravn X
Next: ASLON-45
4Q FY24

23 of 25 Successful RSLP Launches since 2015

Maximize Responsiveness



100% Launch Success is Vital to Countering the Pacing Challenge



USSF Space Access Portfolio

RSLP

NSSL



Sounding Rocket Program – 4

Suborbital targets and experimental flights

- Specialized missions
- IDIQ with 2 providers
- 9-18 mo procurement
- 2018 through 2025



Small Rocket Program – Orbital

Very small spacelift to LEO

- Less than 400 lbm
- Complete every launch
- SBIR opportunities
- 9-18 mo procurement
- 2019 through 2029



Orbital Services Program – 4

Small and medium spacelift to LEO

- Greater than 400 lbm
- 11 IDIQ providers
- Tailorable MA
- 12-24 mo procurement
- 2019 through 2028



Phase 2 Block Buy

Highly reliable medium to heavy spacelift

- Two providers
- Meets all requirements
- Full mission assurance
- 12-24 mo procurement
- 2020 through 2024



Phase 3 – Lane 1 IDIQ

Reliable medium to heavy spacelift

- Multiple providers
- Meets some rqmts
- Tailorable MA
- Variable procurement
- 2025 through 2034



Phase 3 – Lane 2 IDR “Block Buy”

Highly reliable medium to heavy spacelift

- Three providers
- Meets all requirements
- Full Mission Assurance
- 12-24 mo procurement
- 2025 through 2029

Scope of AATS

Launch Contracts

Non-MDAP

MDAP

IDIQ: Indefinite Delivery Indefinite Quantity
LEO: Low Earth Orbit
MA: Mission Assurance

MDAP: Major Defense Acquisition Program
RSLP: Rocket Systems Launch Program
SBIR: Small Business Innovative Research

Semper Supra



Trends Driving AATS

TREND AREA	PAST	CURRENT/FUTURE
Launch Customer	Government preponderance	Commercial preponderance
Launch Cadence	10+ per year	100+ per year
Installations	Major Range and Test Facility Base	Spaceport model and charging rules
Spaceport Capacity	Excess capacity	Demands exceed supply
Assured Access	Government ensures a minimum of 2 commercial providers are available	Multiple commercial launch systems in development, testing and flight
Delivery	Satellites to space	Satellites and materiel to, through, and from space
On-Orbit Servicing/Refueling	Niche Government ability (Space Station, Hubble)	Multiple commercial investments in refueling, servicing, and movement
Spaceport Availability	Two Government installations	Multiple Government, commercial, and allied spaceports

Multiple changes are driving the USSF from a Launch to a Logistics Model



Trend - Increased Launch Cadence

Launch Rates
Dramatically Increasing

'21... '22... '23

Eastern Range: 31...57...(92)

Western Range: 11...19...(42)

On-Orbit Commercial Systems

- Starlink / Starshield
- OneWeb
- Kuiper
- PredaSAR
- *Many more...*





NSSL Future Needs

- Transition to resilient space architecture
 - Increase in higher energy missions
 - More multi-manifested missions (dedicated / excess)
 - Potential new orbits/mission areas
 - Increase number and type of launch systems
 - Increase number of and geographic dispersion of launch sites
 - Operate through threats like weather, cyber, etc.
- Varied payload security requirements
- Ability to do traditional and rapid SV/LV integration
- Supporting anticipated launch tempo increase
- Harness innovative best practices
- No significant launch development RDT&E investment



Mission Success!





Phase 3 draft RFP #2 Overview

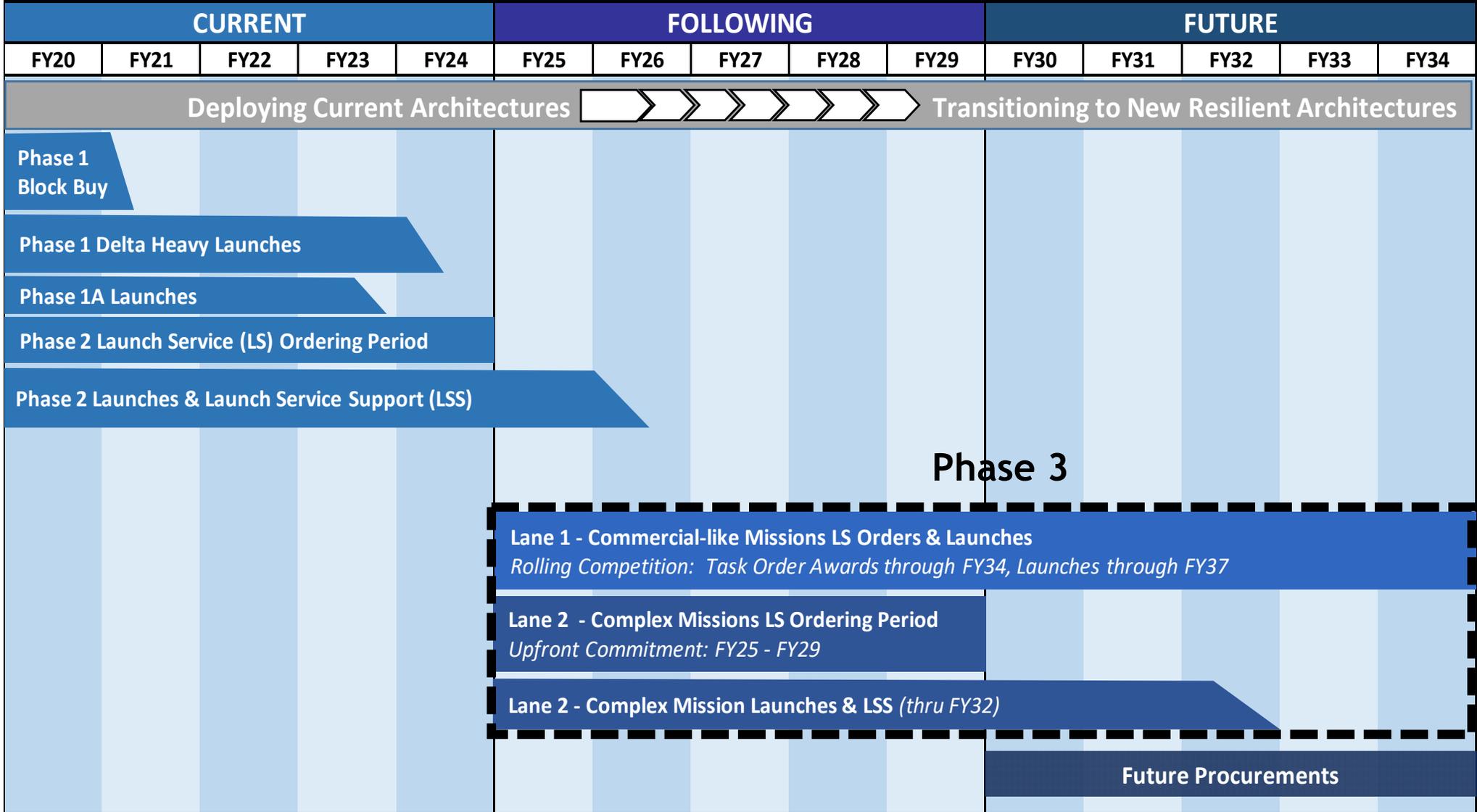
Col Chad Melone

NSSL Phase 3 Senior Materiel Leader



Long-term Program Schedule

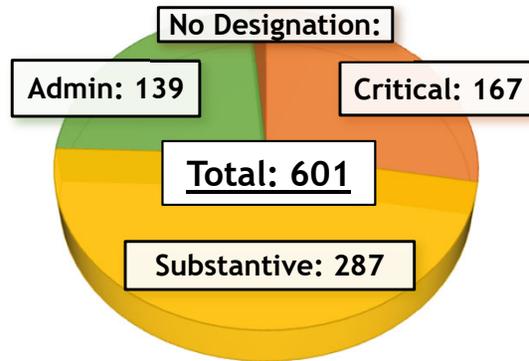
NSSL LAUNCH SERVICE PROCUREMENT STRATEGY



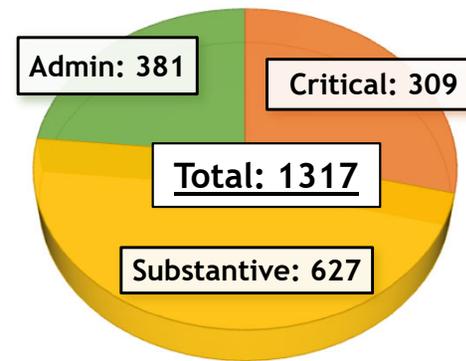


Phase 3 dRFP Lane 1 and Lane 2 CRM Breakdown

Total Lane 1 Comments

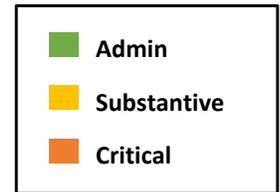


Total Lane 2 Comments

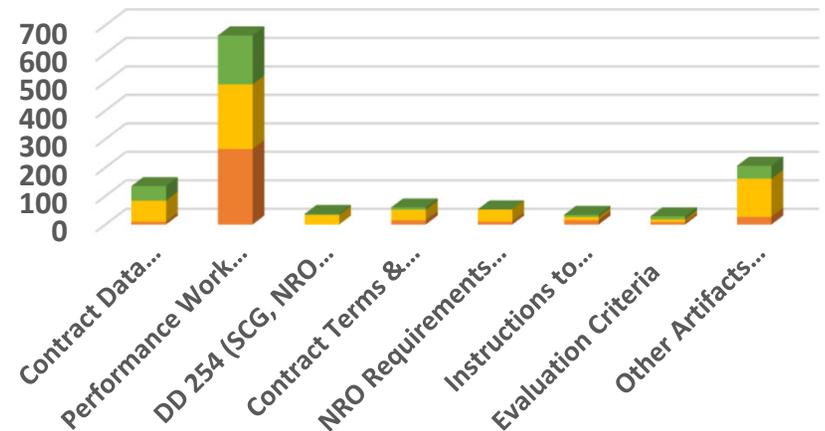
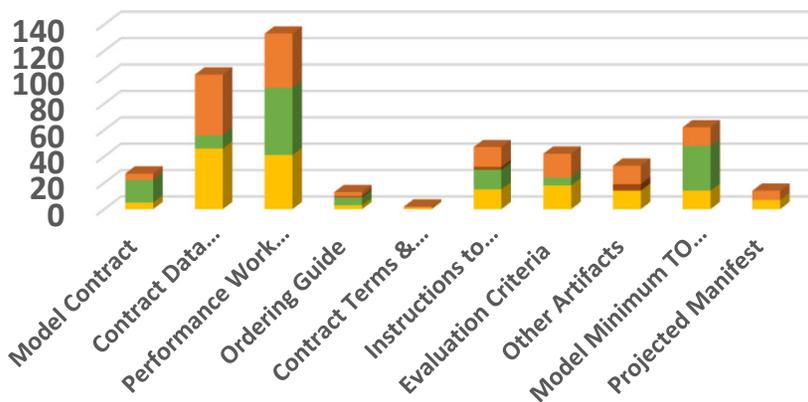


Accepted (A): 229
 Rejected (R): 152
 Modified (M): 167
 N/A: 55

Accepted (A): 475
 Rejected (R): 385
 Modified (M): 378
 N/A: 74



Comment Type by Document



Note: Breakdown includes dRFP documents with 10+ comments



Phase 3 Dual-Lane Approach

- **Operational Imperative:** Launch must deliver national security space capability to the warfighter to deter/defeat current, emerging and future threats
- **Approach to meet imperative:** Provide assured access to space to the integrated space architecture at affordable prices
- **Phase 3 Acquisition Strategy:** Execute a dual-lane approach with two separate contract types to fulfill program requirements

Lane 1 Rolling Competitions	Lane 2 Upfront Commitment
Indefinite Delivery, Indefinite Quantity (IDIQ) contract to on-ramp new systems & emerging providers for missions that are more risk tolerant	Longer-term Indefinite Delivery, Requirements contracts - commitment to assure access to space for missions that cannot fail
<h3 style="text-align: center;">Dual Lane Advantages</h3> <ul style="list-style-type: none"> ➤ Provides annual opportunities so systems in development can on-ramp when ready ➤ Provide additional resiliency through new launch systems ➤ Secures launch capacity/AATS ➤ Provides consistent demand, gain EoQ ➤ Addresses manifest flexibility ➤ Ensures capability for hard missions 	

EoQ: Economic Order Quantities
 IDIQ: Indefinite Delivery Indefinite Quantity
 LSP: Launch Service Provider

Semper Supra



Major Updates to Draft RFP #2

- Structured strategy and RFP to increase resiliency and Assured Access to Space
 - Added 3rd launch provider to Lane 2 -- Awards to Best Value, Next Best Value, and Third Best Value launch provider
 - Protects assured access in the event of a catastrophic issue with a Lane 2 provider
 - Secures additional launch capacity, three LSPs meet all NSSL requirements by end of Phase 3
- Strengthened source selection and mission assignment process to minimize reliance on launch systems in development
 - Evaluating System readiness in Source Selection to meet all NSSL requirements starting in FY27 (OY3) - USG Eval Team will find beneficial Offerors who demonstrate readiness earlier
 - Requiring completion of certification flights and associated analysis prior to ordering missions during contract execution
- Increased competition and cost controls
 - Allocating seven missions to the third best value provider over the 5-year ordering period avoids integration with three systems, 1st mission opportunity in OY2
 - Capping Launch Service Support at \$100M per year
 - Lane 1 providers can propose multiple launches to meet 15,000 lbs to LEO minimum requirement
- Manifest now reflects at least 80 missions over the FY25-FY29 ordering period:
 - Lane 1 approximately 30 missions - More risk tolerant missions
 - Lane 2 approximately 58 missions - Require full mission assurance; 5 GPS missions and additional NRO missions



Draft

Phase 3 Procurement Manifest For Information Purposes Only

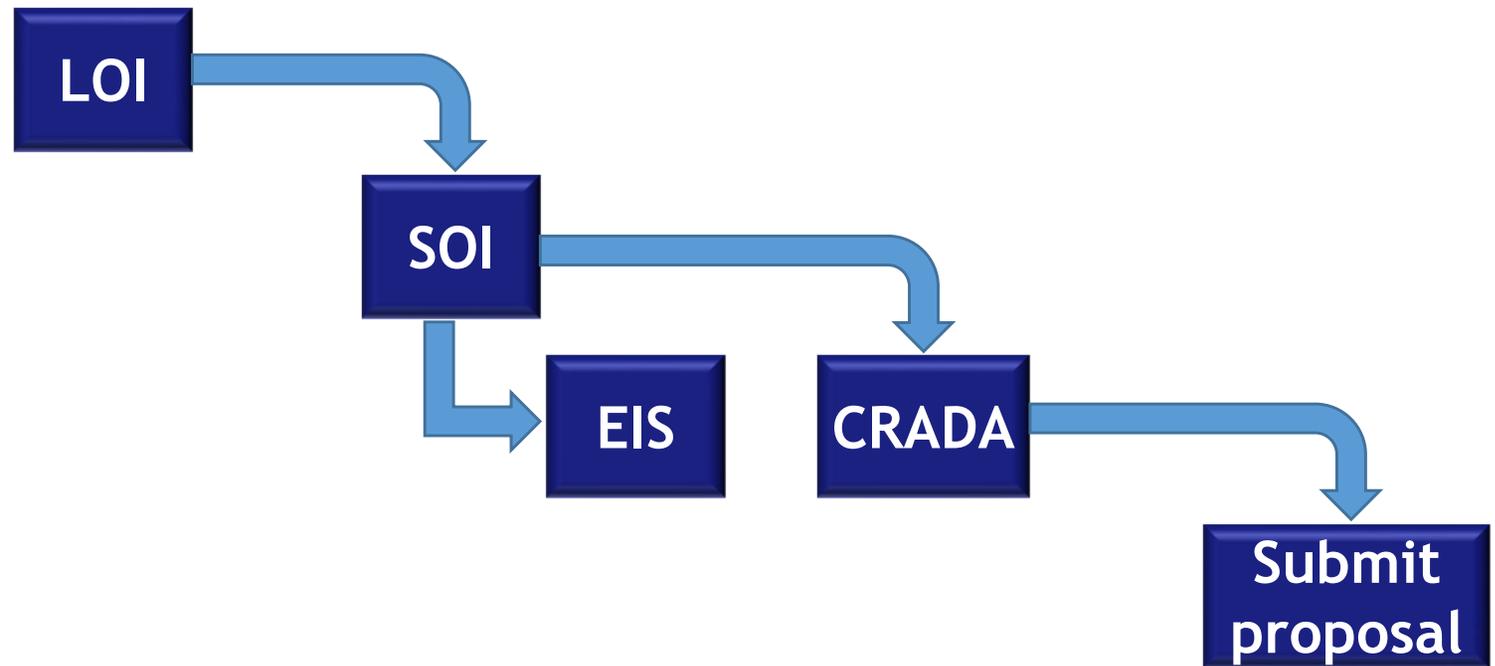
Phase 3 Lane 1 Procurement Years FY25-29					
Mission Assurance Tier:	Tier 0	Tier 1	Tier 2	Tier 3	<u>Total</u>
	TBD	~20+	TBD	~2+	~30

Phase 3 Lane 2 Procurement Years FY25-29								
Orbits:	LEO/ Polar 1	GEO 2/ Polar2	MEO Direct	MEO Transfer	GTO	GEO	Molniya	<u>Total</u>
	~19	~2	~14	~0	~2	~18	~3	~58

Note: The above manifest/distribution is subject to change based on appropriations &/or SV delays



Phase 3 Lane 2 OY1 Early Integration Studies (EISs)



**OY3 Readiness
Evaluation**

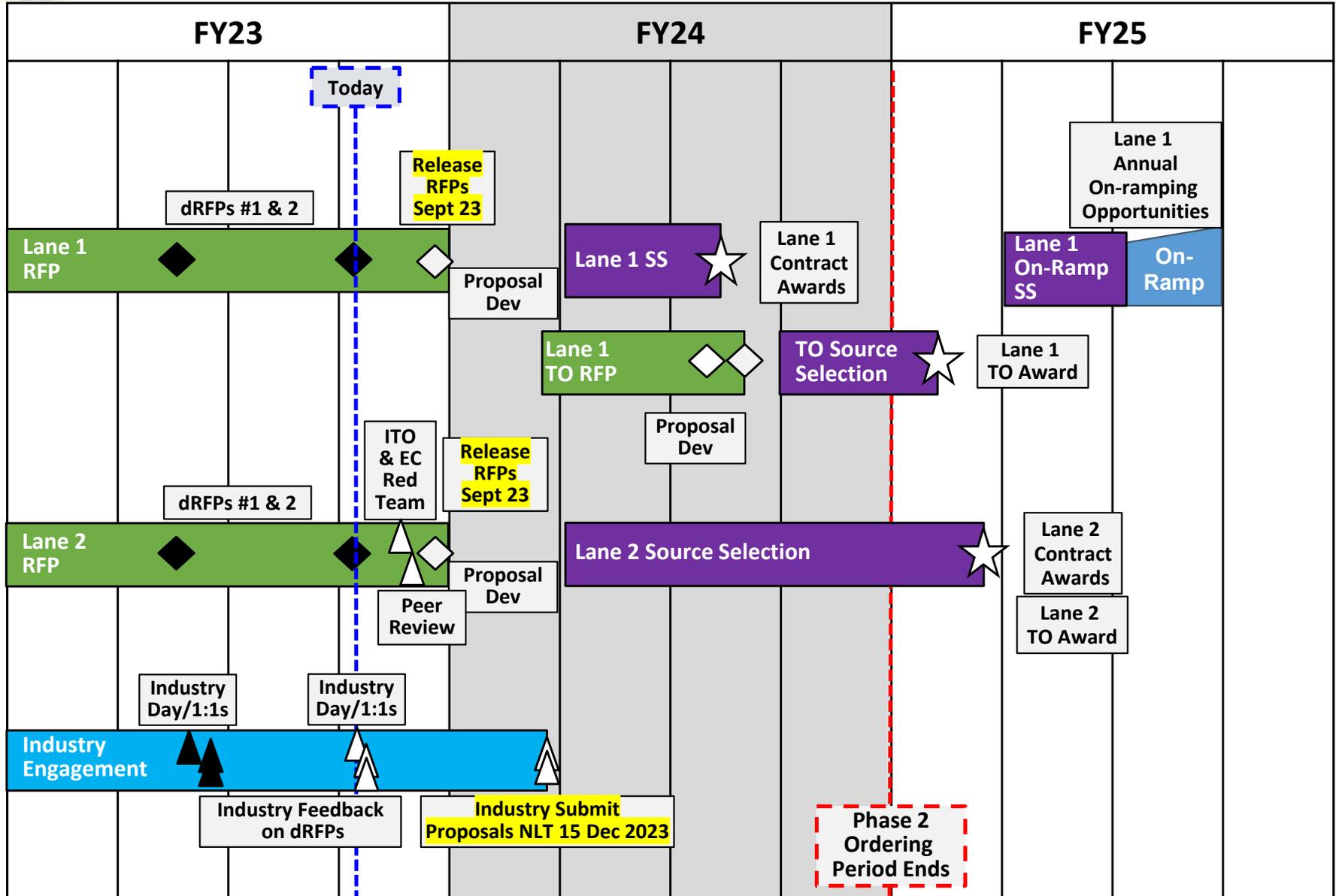
- Offerors interested in bidding for Lane 2 missions must be:
 - LSP with certified system; or
 - LSP with approved certification plan for your proposed launch system
- If an Offeror is neither of these but is interested in conducting EIS
 - LSP must submit a Letter of Intent (LOI) and Statement of Intent (SOI) to initiate a certification plan for your proposed launch system

Please Submit LOI For Your Proposed System By 1300 PDT On 28 Jul 2023



Phase 3 Program Schedule

15 Sep 2023 RFPs Release



Proposals Due To Government NLT 15 December 2023



Lane 1 Updates Phase 3 draft RFP #2

Maj Joseph Bacon

Chief, NSSL Future Procurement



Lane 1 Draft RFP Key Features

■ Revisions from dRFP#1

Basic Contract / On-Ramping

- Instructions to Offerors (ITO) - Basic award and yearly on-ramping to receive min order and ability to compete for mission task orders
- Evaluation Criteria (EC) - Acceptable or Unacceptable
 - 15,000 lbs Mass to Orbit with single or multiple launches/configurations (min of 2204.62 lbm/1000 kg per launch)
 - A credible plan to achieve 1 successful flight w/in 1 year of IDIQ proposal due date
- Min Order PWS - Launch System Readiness Study: Initial Risk Assessment, Technical Insight
- Added "No Interdependencies with Contracts/Agreements Outside this Contract" to Addendum to FAR 52.212-04
 - Clarifies Phase 3 Lane 2 as a separate, stand-alone contract, unrelated to agreements with individual Ranges

Launch Service Task Order (LSTO) Level

- Ordering Guide - LSTO PWS Template; Full NRDV not required; EC similar to Lane 2 (tailored to each msn)
- EC - Must have one successful flight prior to task order proposal due date
- CDRL's - Tailored to msn; added CDRLs for Min Order and Tiered MA



Lane 1 IDIQ Contracts

Parameter	Lane 1: Indefinite-Delivery, Indefinite-Quantity Contracts (IDIQ), ~30 Specified Missions
Contract Type	Multiple IDIQ contract awards; Firm-Fixed Price (FFP)
Order Period	5-yr Base + 5 yr Option (FY25-FY34)
PoP	13 years; launches through FY37
# LSPs	Full & open competition, Lane 2 awardees not excluded
Requirements	Requires Offerors meet a subset of NSSL requirements; Lane 1 providers can propose multiple launches to meet 15,000 lbm to LEO minimum requirement (min of 2204.62 lbm/1000 kg per launch)
Certification	Not required
On-ramping	New entrants on-ramped each FY
Ordering Procedures	Annual task order competitions (individually or in-blocks), allows for non-standard (1 to 3-year) integration cycle
Launch Svc Support (LSS)	None—Proposals shall include fully burdened costs; tiered Msn Assurance framework

■ Revisions from dRFP#1



Lane 1 RFP Document Overview

Released 13 Jul 23

Model Contract (FA8811-23-R-0001)

Exhibit A	Contract Data Requirements List (CDRL)
Atch 1	IDIQ Performance Work Statement (PWS)
Atch 2	Ordering Guide (Appendices: A, FOPR; B, Launch Svc PWS Template)
Atch 3	Addendum to FAR 52.212-04, Contract T&Cs - Commercial Items
Atch 4	Small Business Subcontracting Plan [cover page]
Atch 5	Small Business Participation Commitment [cover page]
Atch 6	Organizational Conflicts of Interest (OCI) Plan [cover page]
Atch 7	Instructions to Offerors
Atch 8	Evaluation Criteria

FOPR – Fair Opportunity Proposal Request



Lane 1 RFP Document Overview

Released 13 Jul 23

Other Lane 1 Documents

Model Minimum Task Order

Model Minimum Task Order, Exhibit "A" CDRL

Model Minimum Task Order, Attachment 1 PWS

Projected Manifest (non-public information; posted to Bidders Library only)

Compliance & Ref Docs (100+ including some non-public info; posted to Bidders Library)

Comment Resolution Matrices (CRMs)



Lane 1 CLIN Structure

Launch Service Orders

CLIN	Description	Type
0002	Launch Service	FFP

Other Orders

CLIN	Description	Type
0001	Launch System Readiness Studies (Minimum Order)	FFP
0003	Quick Reaction/Anomaly Resolution	FFP
0004	Special Studies	FFP
0005	Data And Reports	NSP

CLIN Series

CLIN	Description	Type
1000	Postponement Fees	FFP

■ Revisions from dRFP#1



Lane 1 IDIQ Basic Contract Attachment 8 Evaluation Criteria

Factors		Subfactor	Rating			
B A S E	1	Capability Questionnaire	SF 1	<ul style="list-style-type: none"> • Must be a US/Domestic LS Provider • Evidence to achieve at least 15,000 lbm MTO, 500 nmi circular orbit, 63.4 deg inclination with single or multiple launches and LV configurations (min 1000kg/2204.62 lbm per launch) • Credible plan to achieve 1st Launch within 12 mos. • Evidence of AS9100 certification • Mission Assurance plan addresses all tiers 	Acceptable	Unacceptable
	2	SB Participation Commitment		<ul style="list-style-type: none"> • Min Requirement: 4% 	Acceptable	Unacceptable

■ Revisions from dRFP#1



Lane 1 Task Order Attachment 8 Evaluation Criteria

Factors		Subfactors		Rating						
TASK ORDER 1	Capability Gate	SF 1	System Maturity – 1 flight		Acceptable		Unacceptable			
		SF 2	Completed AS9100 Audit							
		SF 3	MTO & Orbital Insertion Accuracy							
	Technical: Tailored for each mission to select appropriate criteria – all, some or none	SF 1 - Optional		Mission Accomplishment		B	P	G	Y	R
		SF 1	Element 1	Launch Solution Maturity						
			Element 2	Mission Execution						
			Element 3	Payload Interface						
			Element 4	Performance Margin						
			Element 5	Mission Assurance Process						
			Element 6	Payload Manifest						
			Element 7	Security						
			Element 8	Mission Unique Hardware						
			Element 9	Risks						
			Element 10	CONOPS						
Element 11	Mission Integration									
2	Past Performance	Confidence Assessment		Sub	Sat	Neutral	Limited	No		
3	Small Business	Min Requirement: 4%		Acceptable		Unacceptable				
4	Price	Reasonable		Not Reasonable						

Lane 1 TOs May Utilize Several Options From Full Trade-off To LPTA



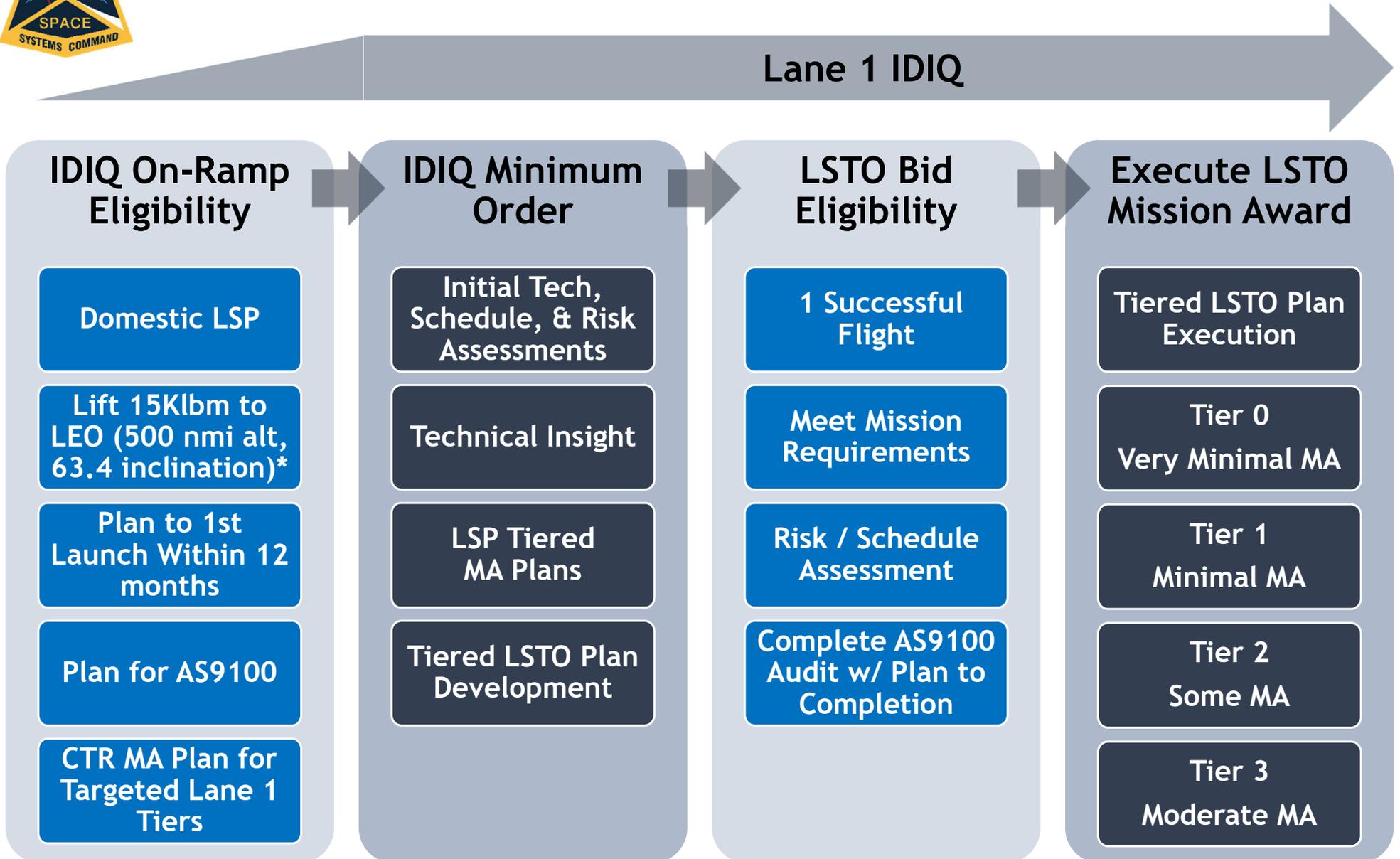
Lane 1 Tiered Mission Assurance

Mr. Robert Van Praet

Systems and Logistics Branch Chief, AAE



Lane 1 IDIQ MA Glance



*MTO can be achieved with a single launch or multiple launches, and multiple launch configurations (min 2204.62 lbm/1,000 kg per launch)



Lane 1 Minimum Order Scope

- Program Management to provide PMR and develop data plan (§ 5.1)
- Technical Insight (e.g., vehicle design, test data, command media) provides support to USG's monitoring of launch services (§ 5.2)
- Deliver Mission Assurance Plan to support mission specific assessments according to Tiered Mission Assurance framework (§ 5.3)
- LSP conducts Process and Launch System Design Review in support of USG's initial technical, schedule, and risk assessments (§ 5.4 & 5.5)
- Tiered LSTO Plan development based on USG assessments to support government non-recurring engineering and mission specific assessment tasks (§ 5.6)

Launch System Readiness Study Provides Lane 1 LSPs, LVs, and CONOPS Capability Assessment To USG



Lane 1 Tiered LSTO Plan Example

Full MA Scope

Hardware Reviews; Flight Mechanics, Guidance and Navigation; Flight Controls, Dynamics and Loads; Thermal, Fluids, and Contamination; Software; DOL Software Load Verification; DOL; DOL Placards; DOL Winds Analysis; Structures; Orbital Debris Mitigation Data; Booster Propulsion Analysis; Upper Stage Propulsion Analysis; Solid Rocket Booster; Rocket Engine(s); Avionics; Ground Software Baseline; Ground Support Equipment; and Launch Site Operations ...



**Tailored based
on Tiered LSTO
Plan Framework**

**Tier 0
LSTO Plan**

Tier 1 LSTO Plan

Hardware Reviews of Engines and Motors; ...

Tier 2 LSTO Plan

Hardware Reviews of Propulsion, Separation, Fairing, and Tank Systems; Guidance and Navigation; Dynamics and Loads; ...

Tier 3 LSTO Plan

Hardware Reviews of Flight Critical Items; Mostly Review of Contractor Documentation; Targeted IV&V; ...



Tiered LSTO Plan Framework

NSSL Phase 3 Lane 1 Tiered LSTO Plan Framework to tailor Non-Recurring Engineering (NRE) and Mission Specific Assessment (MSA) Tasks

Tier 0

NRE and MSA Tasks
Consistent w/
Commercial
Missions

(Space Force
Public Safety
Review)

Very Small DOL
Ops Team w/ Gov
MD

“Very Minimal”
Space Flight
Worthiness
Certification

Tier 1

Deviations from Engines and
Motors Qual Baseline

Deviations to LSTO Plan
Allowed w/ Risk Assessment

High risks must be mitigated
to Medium

Review Top NCs;
QTP/ATP/NCs for Mission
Unique and FFI

Very Small DOL Ops Team w/
Gov MD

“Minimal” Space Flight
Worthiness Certification

Tier 2

Deviations from Propulsion,
Separation, Fairing, and Tank
Systems Qual Baseline

Deviations to LSTO Plan
Allowed w/ Risk Assessment

Medium+ risks must be
mitigated to Low-Medium

Review Top NCs; ATP/NCs for
Flight Critical HW (1st Flt),
then will reduce

Small DOL Ops Team w/ Gov
MD

“Some” Space Flight
Worthiness Certification

Tier 3

Deviations from Flight
Critical Items Qual Baseline

Deviations to LSTO Plan
Allowed w/ Risk Assessment

Medium+ risks must be
mitigated to Low-Medium

Review Top NCs; ATP/NCs for
Flight Critical HW

Full DOL Ops Team

“Moderate” Space Flight
Worthiness Certification



Lane 1 Launch System Data Plan

- Provide plan to deliver Launch System Data according to the mission tier on Government Digital Ecosystem (GDE) as part of minimum order task order

	Tier 0	Tier 1	Tier 2	Tier 3		Tier 0	Tier 1	Tier 2	Tier 3
Acceptance Test Data		GDE	GDE	GDE	Production Process Changes			GDE	GDE
Anomaly Review Board	GDE	GDE	GDE	GDE	Production Readiness Review				GDE
Closeout Photos		GDE	GDE	GDE	Purchase Orders				GDE
Command Media	GDE	GDE	GDE	GDE	Qualification Test Data		GDE	GDE	GDE
Configuration Changes		GDE	GDE	GDE	Quality Metrics				GDE
Drawings		GDE	GDE	GDE	Refurbishment				GDE
Engineering Review Board		GDE	GDE	GDE	Risk Management Board	GDE	GDE	GDE	GDE
Environment Levels		GDE	GDE	GDE	Shipping Readiness Review			GDE	GDE
Environmental Reports	GDE	GDE	GDE	GDE	Security Documents	GDE	GDE	GDE	GDE
Failure Review Board			GDE	GDE	Specifications		GDE	GDE	GDE
Flight Observations		GDE	GDE	GDE	Systems Engineering Data	GDE	GDE	GDE	GDE
Inspection Results				GDE	System Safety Data	GDE	GDE	GDE	GDE
Interface Control Document	GDE	GDE	GDE	GDE	System Verification Review		GDE	GDE	GDE
Launch Veh Analysis Reports		GDE	GDE	GDE	Technical Review Board			GDE	GDE
Launch Complex Data	GDE	GDE	GDE	GDE	Test Procedures		GDE	GDE	GDE
Launch Operations				GDE	Test Readiness Review			GDE	GDE
Material Certifications				GDE	Test Reports		GDE	GDE	GDE
Nonconformances		GDE	GDE	GDE	Verification Evidence	GDE	GDE	GDE	GDE
Post Flight Telemetry	GDE	GDE	GDE	GDE	Verification Planning Matrix	GDE	GDE	GDE	GDE
Pre-Launch Reviews	GDE	GDE	GDE	GDE	Work Orders				GDE



Lane 2 Updates Phase 3 draft RFP #2

Maj Ryan Watson

NSSL Phase 3 Lane 2 Lead



Lane 2 Major Updates to Draft RFP #2

- Additional IDR contract award, 3 LSPs on Lane 2
 - Awards to Best Value, Next Best Value, and Third Best Value (3BV) LSPs
 - Change increases resiliency and Assures Access to Space in the event of a catastrophic issue with one Lane 2 provider
 - Secures additional launch capacity, 3 LSPs must meet all NSSL requirements by end of Phase
 - Allocating 7 missions to the 3BV LSP over the 5-year ordering period
- Updated Readiness Evaluation
 - Source Selection: Evaluating system readiness to meet all NSSL requirements starting in FY27 (OY3)
 - Government may find advantageous the use of demonstrated flight data of the proposed system, flight heritage for major subsystems, operationally ready launch facilities and associated infrastructure, and other evidence of readiness to meet NSSL requirement
 - Contract Execution: Government will evaluate by 1 October of OY whether a LV has completed all NRDV, all certification flights, and poses no additional readiness issues



Lane 2 Updates to Draft RFP #2

- Launch Service Support not to exceed \$100M/year per LSP
- Fleet Surveillance is a separate CLIN, priced annually
- Cumulative Mission Success Incentive removed - final milestone will now be 20% of mission price
- CDRLs reduced from 49 to 43 for Lane 2
- Now requesting pricing for accelerations in OY 1
- Mission estimate increased from 39 to ~58 missions over the FY25-FY29 ordering period
- Added "No Interdependencies with Contracts/Agreements Outside this Contract" to Addendum to FAR 52.212-04
 - Clarifies Phase 3 Lane 2 as a separate, stand-alone contract, unrelated to agreements with individual Ranges



Lane 2 PWS Changes and Updates

- Mission Unique (MU) Section Revisions
 - Reorganization of MU Section 3.8 Multi-manifest Mission/ Standard Payload Sections focusing on:
 - Hardware, Mission Design and Analysis, Ground Processing Mechanical/Electrical, Ground Monitoring, Airborne Environmental, & Maneuvering, Ground Processing, Contamination Control, Pathfinder and Rehearsal, Launch Processing, Classified Mission Categorized Mission Requirements
- Supplier Data
 - Focus on Flight Critical Items and access to LV data for supply chain tracking and reviews
- Payload Encapsulation Facility requirements
 - USG is responsible for acquiring facility
 - Launch Vehicle may be asked to acquire use of a facility as a Mission Unique
- Payload Fairing and Mission Logo
 - Logo size, location, design orientation requirements



Lane 2 CLIN Structure

Launch Service Orders

CLIN	Description	Type
0001	Launch Service	FFP
0002	Mission Unique Services - Procurement	FFP
0003	Mission Unique Services - Research & Development	FFP
0004	Mission Acceleration	FFP
0005	Quick Reaction/Anomaly Resolution	FFP
0006	Special Studies	FFP
0007	Data and Reports	FFP

CLIN Series (Annual)

CLIN	Description	Type
1000	Postponement Fees	FFP
2000	Launch Service Support	FFP
3000	Fleet Surveillance	FFP
4000	Early Integration Studies/Mission Analysis	FFP
5000	Award Fee Incentive	FFP



Lane 2 IDR Contracts Evaluation Criteria

Factors		Subfactor(s)			Rating					
Executive Summary		N/A			N/A					
Approved Cert/NRDV Plan		NRDV plan to meet all NSS requirements			Acceptable		Unacceptable			
1	Technical	SF-1 System Capability			Acceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable	
		E1	Orbital Insertion Accuracy							
		E2	Mass-to-Orbit							
		E3	Payload Envelope							
		SF-2 Category A/B			Acceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable	
		E1	LEO Concept of Operations (CONOPS)							
		E2	Launch System Readiness							
		SF-3 Category C			Acceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable	
		E1	Launch System Readiness							
		SF-4 System Risks and Mitigations			Acceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable	
2	Past Performance (PP)	Confidence Assessment								
		Substantial		Satisfactory		Neutral		Limited		No Confidence
3	Small Business (4%)	Acceptable				Unacceptable				
4	Price (TEP)	Reasonable		Unreasonable		Balanced		Unbalanced		

- To increase competition, flight will not be required as a gate to advance in proposal evaluation
- When Combined Factors 1 thru 3 are significantly more important than Factor 4 Price

Best Value Tradeoff: Technical Factors Are More Important Than Price



Lane 2 IDR Contracts

Parameter	Indefinite-Delivery Requirements Contracts Lane 2: ~58 Missions
Contract Type	3 IDR contracts; Fixed Firm Price (FFP)
Order Period	5-yr base (FY25-29); <u>encompassing critical missions with long lead integration</u>
PoP	8 years; orders FY25-29 & launches FY27-32
LSPs/Mission share	3 LSPs: Best Value Share: 60%; Next Best Value Share: 40%; 3rd Best Value receives 7 select missions starting in OY 2
Requirements	Meet all NSSL requirements
Certification	Certification flights and associated analysis must be complete before missions are assigned
Annual On-ramping	None until after FY29 (end of Phase 3 Ordering Period)
Ordering Procedures	Mission Assignment Process and Requirements Table for share ratio allocation, Nominal 2-yr integration cycle w/acceleration options
Launch Svc Support (LSS)	Annual LSS funding to cover NSS-unique, non-discrete costs
Incentives	Annual LSS (NTE \$100M/yr/LSP, Award Fee (Max \$20M/yr, ~\$160M over PoP); Withhold last payment (20%) until mission success



Transformative Mission Assurance Initiatives and Engrained Mission Assurance

Mr. Bobby Allen

Engrained Mission Assurance IPT Lead



NSSL Transformative Mission Assurance (TMA) Initiatives

Given:

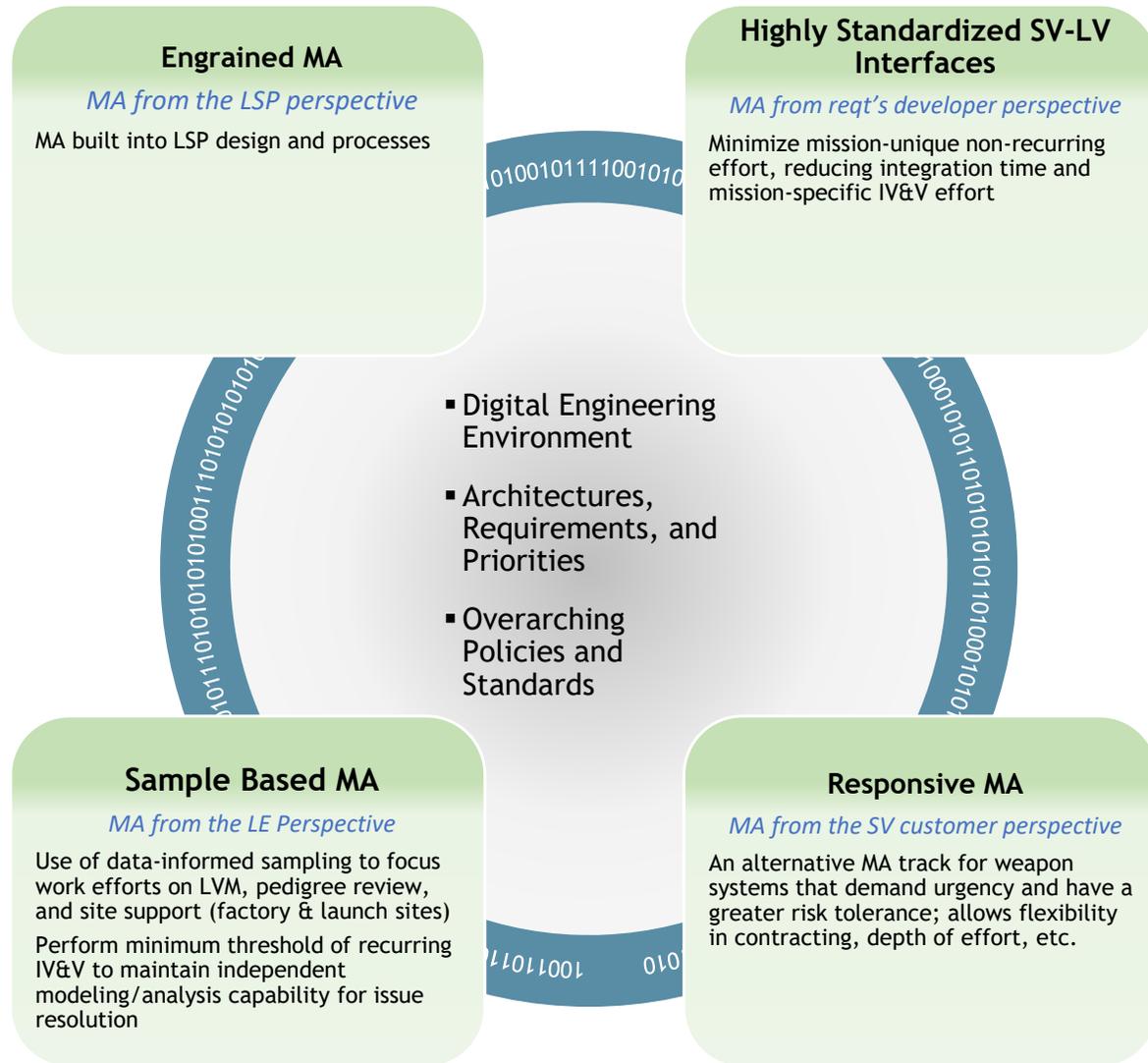
- The USSF’s highest priority is mission success – only achieved through layered NSSL and Launch Service Provider (LSP) mission assurance
- Launch Enterprise continually evolves and adapts MA processes that leverage industry innovation and 20 years of success
- Our environment is radically changing with ongoing major systems transitions, industry-wide personnel constraints, trend of increasing launch requirements, an increasing commercial market, and future threat

Challenge:

Identify MA transformations that will revolutionize the MA process and allow for space-based capabilities meeting warfighter needs in a more responsive and dynamic environment

Purpose:

- Develop transformative approaches to mission assurance (MA)
- Utilize fewer resources at the Government/Industry level - not just shifting work
- Maintain 100% mission success
- Longer term strategy with near term tactical actions
- Implementable - reasonable enablers, limited barriers



The USSF must implement transformative mission assurance approaches to utilize fewer resources, support an increased launch tempo, and maintain 100% mission success



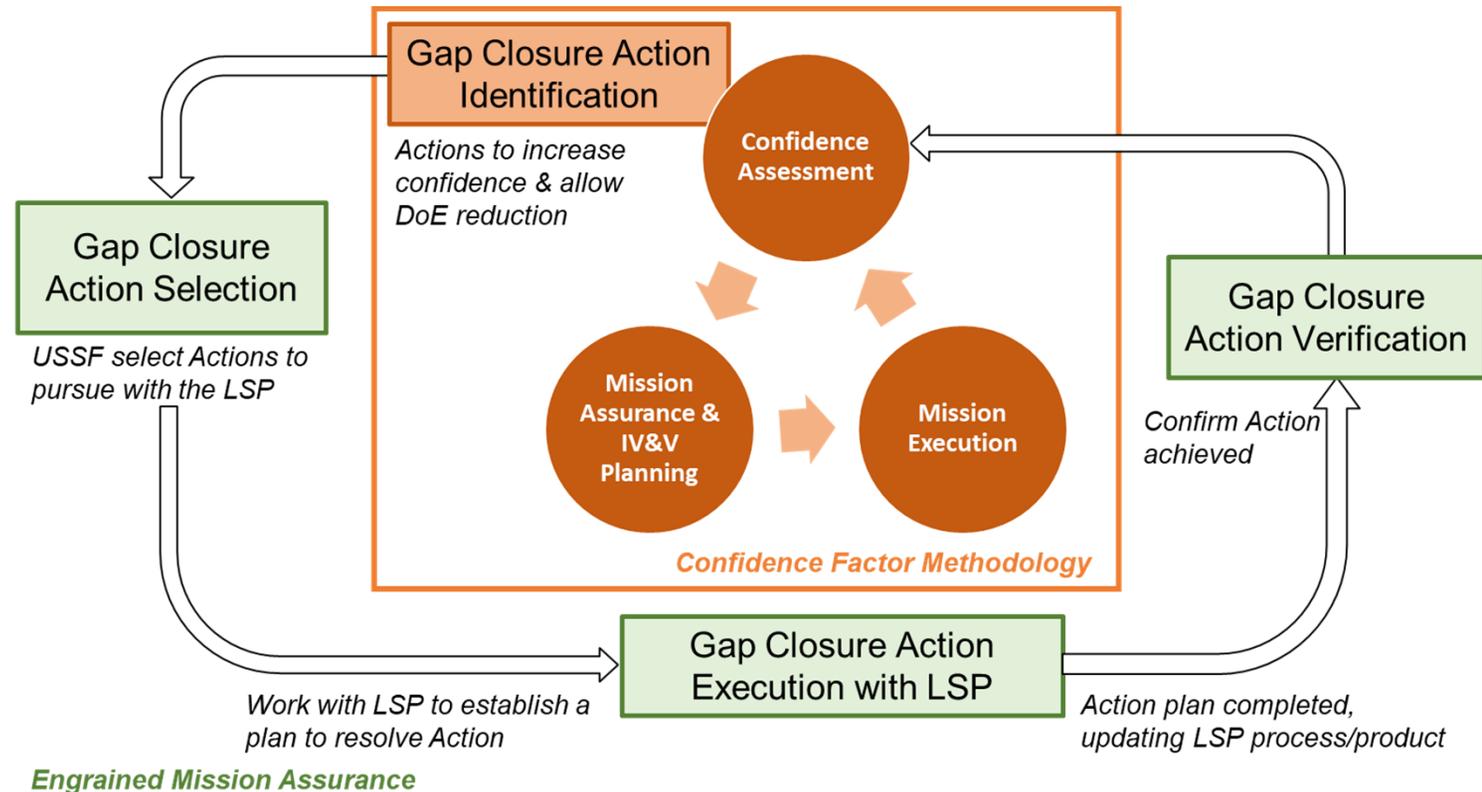
Engrained Mission Assurance

What is Confidence Factor (CF)?

- A structured, repeatable, and sustained process by which the USG assesses its confidence in Contractor processes
- Based on assessed confidence, USG adjusts as appropriate, the level and depth of USG mission assurance effort necessary to support space flight worthiness certification

What is a Gap Closure Action?

- An action item identified by the USG through CF assessment whose successful completion will increase USG confidence in a Contractor process, enabling reduction of USG DoE



How does this relate to Engrained MA (EMA)?

- EMA's goal is to collaborate with LSPs to identify mutually beneficial candidate data products and processes to "build in" United States Government (USG) team MA confidence (proposed focus areas include hardware flight worthiness reviews, Contract Data Requirements List (CDRL) items, launch site MA tasks and post-flight data reviews)
- EMA seeks to work Gap Closure Actions generated from Confidence Gaps with LSPs. Then leverage these changes to scale back independent USG team MA efforts based on Confidence Factor evaluations of those data products and processes.



TMA, EMA, and Phase 3

Phase 3, Lane 2 PWS Modifications:

- Inserted language to include support of NSSL Transformative Mission Assurance Initiatives
- Primarily looking for proactive, collaborative participation from Lane 2 LSPs to help identify opportunities for mutually beneficial process improvements and adjustments to aid overall reduction of USG independent MA effort (while maintaining an acceptable level of risk)
- Will include working with the USG team(s) to develop and incorporate Transformative Mission Assurance processes and Joint Work Plans (if required)
- Added two new Technical Interchange Meetings (TIMs) to Appendix E
 - EMA TIMs - Once per month, estimated 2-hour duration (suggested); purpose to discuss content, scope and path forward for proposed Gap Closure Actions (GCAs) to further improve USG confidence level
 - TMA TIMs - Once per month, estimated 1-hour duration (suggested); purpose to discuss process and data aspects relevant to other TMA initiatives as concepts continue to evolve
- USG team to provide agenda of topics prior to the scheduled meeting to allow LSPs to determine appropriate SMEs and ensure availability

Phase 3 Award Fee Plan Modifications:

- Added incentives for LSP to develop and complete JWPs for accepted GCAs
- Added incentives for LSP participation and support of all NSSL TMA initiatives
- Varying levels of incentive based on collaborative and proactive LSP participation and significance of benefits to USG



NSSL Lane 2 Requirements & Document Changes

Mr. John Wong

Deputy Chief Engineer, AAE



NSSL Requirements

NSSL Primary Payload Mass-to-Orbit Reference Orbits (SPRD Rev C, 2023)

Reference Orbit	Apogee Altitude (nmi)	Perigee Altitude (nmi)	Inclination (deg)	Mass-to-Orbit (lbm)	Semimajor Axis (nmi)	Eccentricity
LEO	NS	NS	63.40	15,000	3,944	0
Polar 1	NS	NS	98.20	15,500	3,894	0
Polar 2	NS	NS	98.20	37,500	3,894	0
MEO Direct	NS	NS	50.0	20,000	13,259	0
MEO Transfer	10,998	540.0	55.00	9,000	NS	NS
GTO	19,323	100	27.00	18,000	NS	NS
Molniya	21,150	650	63.4	11,500	NS	NS
GEO 1	NS	NS	0.0	5,000	22,767	0
GEO 2	NS	NS	0.0	14,500	22,767	0
MEO Direct 2	NS	NS	55.0	6,450	14,442	0
GEO 1.5	NS	NS	0.0	8,000	22,990	0
Retrograde	NS	NS	120	15,000	3,944	0

Examples of Key NSSL Requirements:

- [Mass to Orbit](#)
- [Orbital Insertion Accuracy](#)
- Overflight
- GPS Key handling - “Zeroizing”
- Full ODMSP Compliance
- Vertical Integration
- Eastern & Western Ranges
- 5-m diameter Fairing (min)
- 62-in, 103-inch, and 173-in Payload Interfaces
- [173-in Bolt Hole Pattern](#)
- Autonomous Flight Safety Sys
- [Secure GPS / M-code](#)
- End-to-end USSF Mission Assurance Support: Data, Fleet Surveillance, & Risk Mitigation

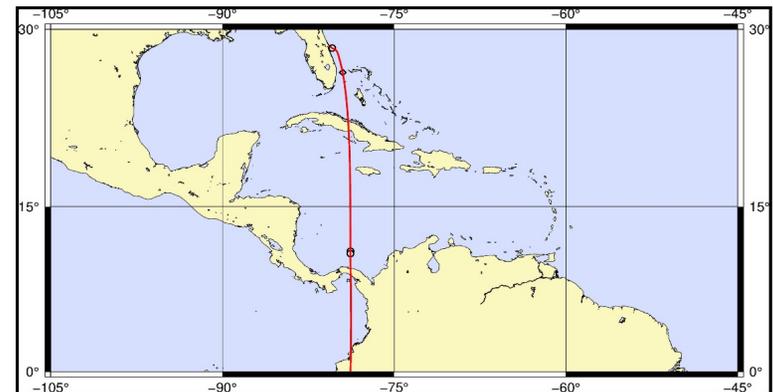
NSSL Requirements: System Performance Requirements Document (SPRD), Standard Interface Specification (SIS); Other Specs, Standards, Compliance items



Noteworthy Updates in SPRD Revision C

- Updated Mass to Orbit Reference Orbits and Orbital Parameter Accuracy limits based on recent SV mission survey (**GEO 1.5 and Retrograde revised**)
- Updated Overflight requirement to focus more on minimizing unintended disclosure of critical technology
- Updated Orbital Debris, Range Safety, **Protected GPS**, Disposals, and Cyber Security requirements

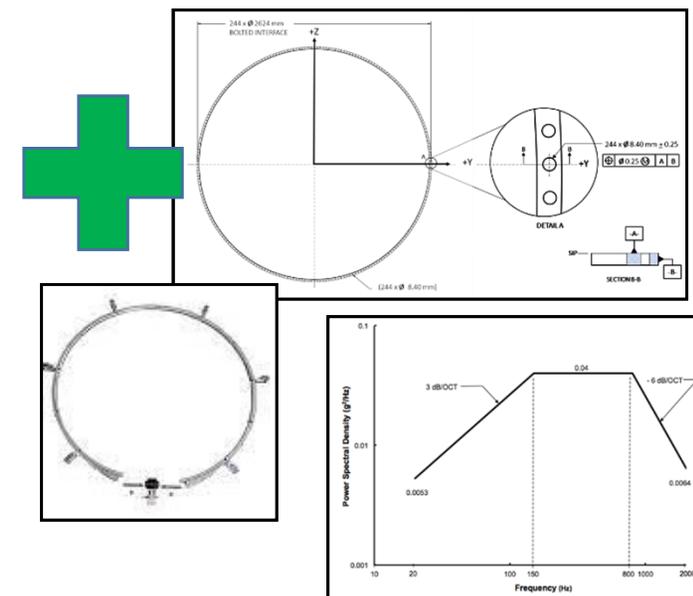
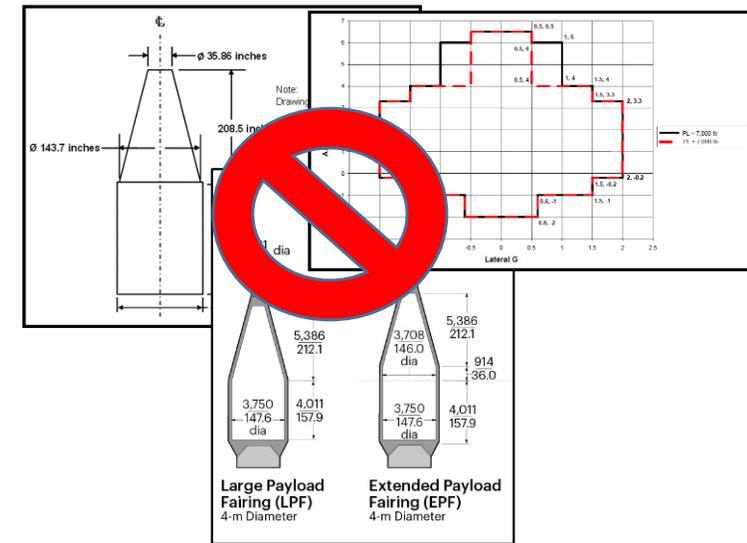
NSSL Primary Payload Mass-to-Orbit Reference Orbits (SPRD Rev C, 2023)						
Reference Orbit	Apogee Altitude (nmi)	Perigee Altitude (nmi)	Inclination (deg)	Mass-to-Orbit (lbm)	Semimajor Axis (nmi)	Eccentricity
LEO	NS	NS	63.40	15,000	3,944	0
Polar 1	NS	NS	98.20	15,500	3,894	0
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GTO	19,323	100	27.00	18,000	NS	NS
Molniya	21,150	650	63.4	11,500	NS	NS
GEO 1	NS	NS	0.0	5,000	22,767	0
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GEO 1.5	NS	NS	0.0	8,000	22,990	0
Retrograde	NS	NS	120	15,000	3,944	0





Noteworthy Updates in SIS Revision D

- Removed Category A Payload Envelope
- Added 103-inch (2624mm) diameter payload interface as standard service
- Added Payload Fairing Internal Pressure limits for venting and mitigating risks
- Added LV-to-Payload Shock levels for LSP-provided separation systems
- Added tabular data for graphical data
- Updated routine access, SV mass properties, ground ops, electrical interfaces, environments, mission design, LV commands, RF attenuation, and MSE accommodations requirements
- Revised 173-inch diameter Payload Interface Bolt Hole Pattern





Noteworthy Updates in Compliance and Reference Document

- Compliance document numbering changed from “LE” to “NSSL” for draft documents
- Compliance documents updated:

- NSSL-S-110-2023
- NSSL-T-SMCS018-2023
- NSSL-T-SMCS011-2023
- NSSL-S-016-2023
- NSSL-S-010-2023
- LE-T-080A-081B (2023) split into two separate documents

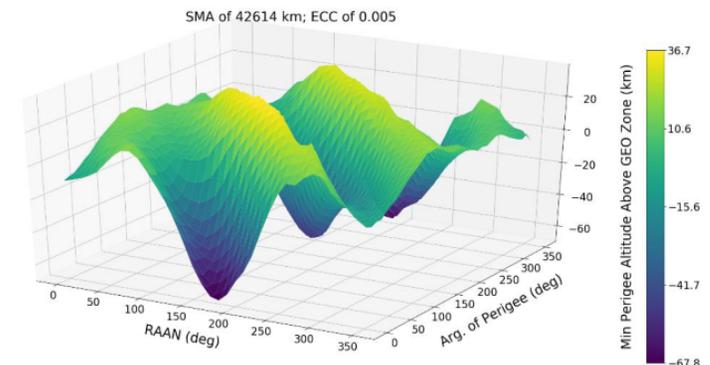
- LE-S-005 replaced by SSC-S-005 (2023)
- LE-S-006 replaced by SSC-S-006 (2023)
- LE-S-025 replaced by SSC-S-025 (2023)
- NSSL-S-007-2023: CRM adjudicated, update in work

- ODMSP 100 years guidance provided as reference in TOR-2023-01395: *Disposal Options for Selected Orbits*

NSSL-L-123ABC567DEF-YYYY

1 2 3

1. Document types: Spec (S), Tailor (T), Plan (P)
2. Up to 12 Alphanumeric field for correlation or sequential numbering
3. YYYY: Year of publication





Orbital Debris Mitigation Standard Practice (ODMSP)

David Cavazos, Launch Systems Operations & Development, Aerospace



- 2019 ODMSP compliance will be required for Phase 3
- TOR-2023-01395 document provides compliance guidance information for disposals in tables from:
 - GEO1, GEO2, GEO1.5 (above GEO disposal)
 - MEO Direct, MEO Direct 2
- Guidance can be used to inform proposal preparation
- Feedback on TOR is welcome
- TOR-2023-01395 will be updated for final Phase 3 RFP release
 - Adds below-GEO disposal option
 - Macro tool for table lookup



Analysis & Methodology Description

TOR-2023-01395, "Disposal Options for Selected Orbits"

If this guidance information is used in upper stage disposal planning, recommend the analysis & methodology description include the initial targeted disposal orbit parameters for

- Semi-major axis (or apogee and perigee altitudes)
- Eccentricity
- Inclination
- RAAN
- Argument of perigee
- Compliance result



Instructions to Offerors Excerpt

The Offeror shall state its launch system offering's mass-to-orbit capabilities for each proposed configuration for applicable reference orbits (as defined by the SPRD Rev C, Tables 1 and 2) in Table 7.3.1-1.

The maximum mass-to-orbit capabilities shall be calculated as defined in the SPRD Rev C, Appendix A , and must be inclusive of all Government directed and any applicable contractor performance reserves and ODMSP compliance.

The Offeror shall describe the analysis and methodology it used to calculate the mass-to-orbit capability.



Evaluation Criteria Excerpt

- The Government will evaluate whether, and the extent to which, the Offeror's proposed mass-to-orbit capability meets or exceeds Government requirements and whether the methodology and justification supporting the proposed mass-to-orbit capability is technically sound.

**It's Not Enough To Cite The TOR.
USSF Will Need Supporting Analysis & Rationale.**



Technical Issue Resolution Process (TIRP) Overview

Dr. Walt Lauderdale
Chief, Falcon System & Ops



TIRP Background

- In the late 1990s, Aerospace developed a launch risk assessment process as a rigorous standard to report launch risk to senior decision makers
 - Driven by the realization that in many cases there would be insufficient data to make a quantitative risk assessment
 - Desire to apply engineering rigor to estimation of probability that specific risk event will occur
 - Desire to have a consistent process for assessment of risk across all organizations involved in launch
- Since its inception, this risk assessment framework was extended to evaluate a wide range of issues
 - Subsequently incorporated by the government into the Technical Issue Resolution Process (TIRP)—used to this day by the USSF’s NSSL Product Line engineering teams (Atlas, Delta, Falcon, Vulcan)
 - For consistency, the TIRP was also applied to certification of new launch systems
- For NSSL contracts, the TIRP is listed as a reference document
 - Complements contractual requirements levied on the Launch Service Provider to mitigate Product Line Chief Engineer-identified **flight risks** that are above a specified threshold



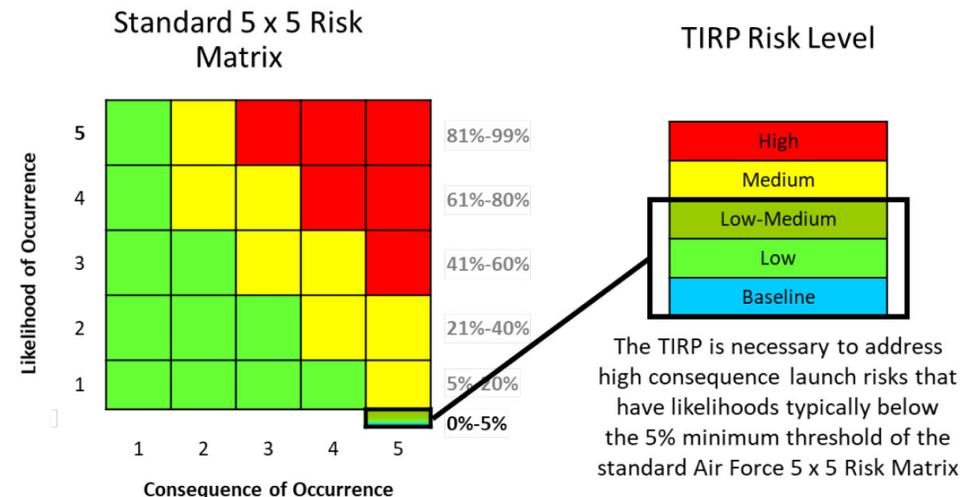
Approach

- Risk rating applied to each anomalous item encountered during launch campaign or verification activity
- Criteria is qualitative augmented with quantitative scale (when applicable)
- Qualitative assessment must address:
 - Qualification conditions - relative to flight environment
 - Flight configuration - relative to qualification configuration
 - Flight experience - Successfully flown in past or correlation with similar flown hardware
 - Environments - Environments were confirmed by flight
 - Margins - relative to flight conditions
 - Confidence in analysis, inspection, test methods/results
- Addressing the entire Launch Verification activity requires the following elements:
 - System Analysis
 - Launch Vehicle hardware and software
 - Launch Operations hardware and software
 - Mission Integration configuration and requirements



5x5 Risk Matrix vs. TIRP

- The 5x5 risk matrix (program) typically does not adequately address a particular situation with launch vehicle flight worthiness
 - Success or failure (binary) are the only likely measurable outcomes in space launch
 - Frequently, there is insufficient data available for a quantitative risk assessment - often calling for a qualitative risk assessment
- Classic (likelihood vs. severity) scales should be used for:
 - Program risk where cost & schedule are considerations
 - Satellite mission risk where mission life/performance can be affected
 - Launch processing/operations risk where cost/schedule are part of the decision-making criteria
- Technical issues identified through the course of processing launch vehicle hardware/launch verification may present some kind of risk to a given mission
 - Flight risk
 - Launch on Time (LoT) risk



- TIRP assumes mission failure is the consequence of flight risks - likelihood of most flight risk falls in a very low probability value
- LoT risk often presents once sufficient mitigations identified/implemented to address a flight risk
 - LoT risk is frequently present for Baseline flight risks, or risks identified as part of the launch system ground element that don't adversely impact actual flight hardware



Consequence Scale

- Individual risk assessment applied to each item qualitatively (augmented with quantitative, when applicable)
- Risks are acceptable (dependent on mission payload class (A-D)) with mitigating conditions (e.g., redundancy, margin, testing, etc.)
- When there are multiple individual elevated risks (above Low), the affect on system (mission) risk requires an additional explicit evaluation

Risk Rating	Qualitative Description	Assessment	No-Fly Recommendation for Class A Missions
High	Reasonable probability of flight risk realization (i.e., occurrence). One of the following conditions exist: 1) Significantly outside of qualification or flight experience, OR 2) Analytical safety factor under nominal conditions is significantly lower than normally required, or analysis, inspection, or test lacks any confidence, OR 3) Grossly outside of qualification configuration. It may be assessed in conjunction with qualitative factors 1-3 with a probability of occurrence of about 1/3 per mission.	Cannot rule out failure. Remove and replace or system modification	
Medium	Risk unlikely to be realized (but very possible). The following conditions exist: 1a) Moderately outside qualification conditions and limited flight experience, AND 1b) Analytical safety factor under worst-case conditions is significantly lower than normally required, or analysis, inspection, or test has low confidence, OR 2) Significantly outside of qualification configuration. It may be assessed in conjunction with qualitative factors 1-2 with a probability of occurrence of about 1/10 per mission.	Significantly elevated flight risk. Mitigation required to add confidence by analysis, testing, or modification	
Low-Medium	Risk unlikely to be realized (but possible). One of the following conditions exist: 1) Slightly outside qualification configuration and limited flight experience, OR 2) Slightly outside qualification conditions and analytical safety factor under worst-case conditions is moderately lower than normally required or analysis, inspection, or test has only moderate confidence, OR 3) Moderately outside of qualification configuration. It may be assessed in conjunction with qualitative factors 1-3 with a probability of occurrence of about 3/100 per mission.	An elevated flight risk. Fly as is with adequate mitigating conditions	
Low	Risk unlikely to be realized. The following conditions exist: 1) Enveloped by qualification conditions and consistent with qualification configuration, but qualification environments not confirmed through flight data, OR 2) Significant flight experience, OR 3a) Supported by high confidence analysis, inspection, or test with appropriate safety factors under worst-case conditions, AND 3b) Only slightly out of qualification configuration. It may be assessed in conjunction with qualitative factors 1-3 with a probability of occurrence of about 1/100 per mission.	A slightly elevated flight risk, but clearly acceptable. Fly as is.	
Baseline ¹	Risk highly unlikely to be realized. The following conditions exist: 1a) Enveloped by qualification conditions and flight experience, AND 1b) Consistent with qualification configuration, AND 1c) Qualification environments confirmed through flight data, AND 1d) Consistent with specs and standards. It may be assessed in conjunction with qualitative factors with a probability of occurrence of about <3/1000 per mission.	Baseline flight risk. Fly as is.	

Flight Risk



Consequence Scale

Launch on Time Risk

Schedule Impact Level	Description	Assessment
High	The technical issue is on the critical path, and there is no handling plan.	Launch slip greater than 20 days is likely.
Medium	The technical issue is on the critical path. Handling tasks have been identified, but the handling plan has a negative margin to the need date.	Launch slip between 5 and 20 days is likely.
Low-Medium	The technical issue is on the critical path. Handling tasks have been identified, but the handling plan has minimal or no margin to the need date (e.g., green light schedule).	Launch slip up to 5 days is likely.
Low	Handling tasks have been identified, and the handling plan supports the first need date with adequate margin.	No impact to launch date.
Baseline	Handling tasks have been identified, incorporated, and have become a part of the "in-line" work.	No impact to launch date.



Evaluation Matrix

- Qualitative assessment must address:
 - Qualification conditions - relative to flight environment
 - Flight configuration - relative to qualification configuration
 - Flight experience - successfully flown in the past or correlation with similar hardware
 - Environments - confirmed by flight
 - Margins - relative to flight conditions
 - Confidence in analysis, inspection, test methods/results

Condition	1	2	3	4	
Qual Program	Flight conditions enveloped by qual conditions and consistent with accepted standards	Flight conditions slightly outside of qual conditions and/or accepted standards	Flight conditions moderately outside of qual conditions and/or accepted standards	Flight conditions significantly outside of qual conditions and/or accepted standards	Qualification validated
Flight Configuration	Flight article configuration consistent with qual article form, fit, and function	Flight article configuration slightly outside qual article form, fit, and function	Flight article configuration moderately outside qual article form, fit, and function	Flight article configuration significantly outside qual article form, fit, and function	Hardware under configuration control
Flight experience	Significant flight experience and/or correlation with previously flown item	Limited flight experience and/or correlation with previously flown item			Vehicle successfully flown in the past or correlation with similar flown hardware
Environments	Environments were confirmed through flight data				Environments were confirmed by flight
Margin	Appropriate margins/redundancy under worst case conditions	Appropriate margins/redundancy under expected conditions	Margins/redundancy under expected conditions lower than required	Margins/redundancy under expected conditions significantly lower than required	Large safety factor, redundancy, or confidence in contractor tools/analysis
Analysis, Inspection, or Test Confidence	High	Moderate	Low	None	

Condition	Decision Output															
	Baseline	Low			Low Medium			Medium			High					
Qual program	1	1	1,2	1,2	2	1,2	1,2	3	-	2	2,3	-	4	-	-	-
Flt configuration	1	1	1,2	2	1	2	3	-	2	-	2,3	4	-	4	-	-
Flt experience	1	-	1	-	2	-	-	2	-	-	-	-	-	-	-	-
Environments	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Margin	1	1,2	1,2	1	1,2	1,2	2	-	3	3	-	-	-	-	4	-
Analysis, inspection, test	1	1,2	1,2	1	1,2	1,2	1	-	-	-	3	2	-	-	-	4

"-" ≡ Not Relevant

↑
All are true

↑ OR ↑ OR ↑

- If multiple columns have all the conditions met always use the left most column
- If assessment does not fit any column then there is a need to reevaluate the scoring
- Do not double book any risk



Summary

- Technical Issue Resolution Process (TIRP) is NSSL's tool for rigorous engineering evaluation of design/qualification baseline and issues arising during launch vehicle build/processing
- TIRP focused on flight (mission) risk only
- More detailed discussion/presentation of government's application of TIRP can be arranged



Lane 2 Security

Capt Colin Johnson

Government Mission Integration Manager (GMIM)



Phase 3 Lane 2 Security Brief

- PWS Sections 3.1.15.3 and 3.1.18 Cyber Security
- PWS Section 3.1.16 Security
- Security WG & Mission Unique Items
- Q&A
- Detailed Back-Up Slides



PWS LSS Changes

Sections 3.1.15.3 and 3.1.18 Cyber Security

3.1.15.3 LSS: Cyber Security

BLUF: Section 3.1.18 combined into Section 3.1.15.3 for cyber security

- Removing ISO 27001 requirement and keeping NIST SP 800-171 (Protecting CUI) for development, manufacturing and business systems.
- DoD establishing the Cybersecurity Maturity Model Certification (CMMC) 2.0 rules. Once finished, the contractor will be required to comply with CMMC 2.0 Level 3 instead of ISO 27001 and NIST 800-171.
- Adding DoDI 8510.01 (Risk Management Framework), for mission operations systems (ground and launch vehicle systems).



3.1.16 LSS Security

3.1.16.1 LSS: Security Levels for Work Performed

- Contractor may leverage OGA accredited space to handle SCI and SAP, but agreements must exist to ensure the required work can be performed

3.1.16.2 LSS: Classified Facilities

- Contractor must provide facilities that can handle TS//SCI//SAP at HQ AND each launch site
- May be OGA accredited, but will likely require new space at launch sites
- USG assessing possibility of providing DoD-owned and accredited facility to meet this requirement

3.1.16.3 LSS: Classified Networks and Administrative Personnel

- Contractor must be able to access SIC or CORE at mission management HQ and each launch site
- This requires workstations with SAR IT access, USG can assist with hardware and network set up
- Each location requires 2 workstations, 1 printer, and 2 VoIP phones that can handle TS//SCI//SAP

3.1.16.4 LSS: Classified Facilities and Administrative Personnel

- Contractor will need sufficient staffing to handle TS//SCI//SAP

3.1.16.5 LSS: Cleared Personnel

- Contractor required to maintain adequate number of cleared personnel for TS/SCI//SAP missions
- Up to Contractor to determine the exact number, but at a minimum, upper management, mission management, chief engineer and technical lead personnel will need active clearance

3.1.16.6 LSS: Classified Analysis Capability

- Contractor will be able to perform integrated LV and SV classified Coupled Loads Analysis (CLA) and Integrated Thermal Analysis (ITA) at TS//SCI level



Security Working Group & Mission Uniques

3.4.2.6 MI: Launch Security Working Group (LSWG)

- Contractor is required to host a mission-specific, Launch Security Working Group on a quarterly basis with AATS, SV SPO, and LSIC included
- This working group meets quarterly from ATP through launch with exceptions permitted by the COR

3.8.13.1 MU: Launch Site Security Support for Classified Missions Option

- Contractor shall provide additional security support for all integrated operations IAW the IRD and the Contractor's mission-unique security plan
- Security plan shall identify how to protect Critical Program Information with input from AATS, SV SPO, and LSIC

3.8.13.2 MU: Classified Mission Analysis

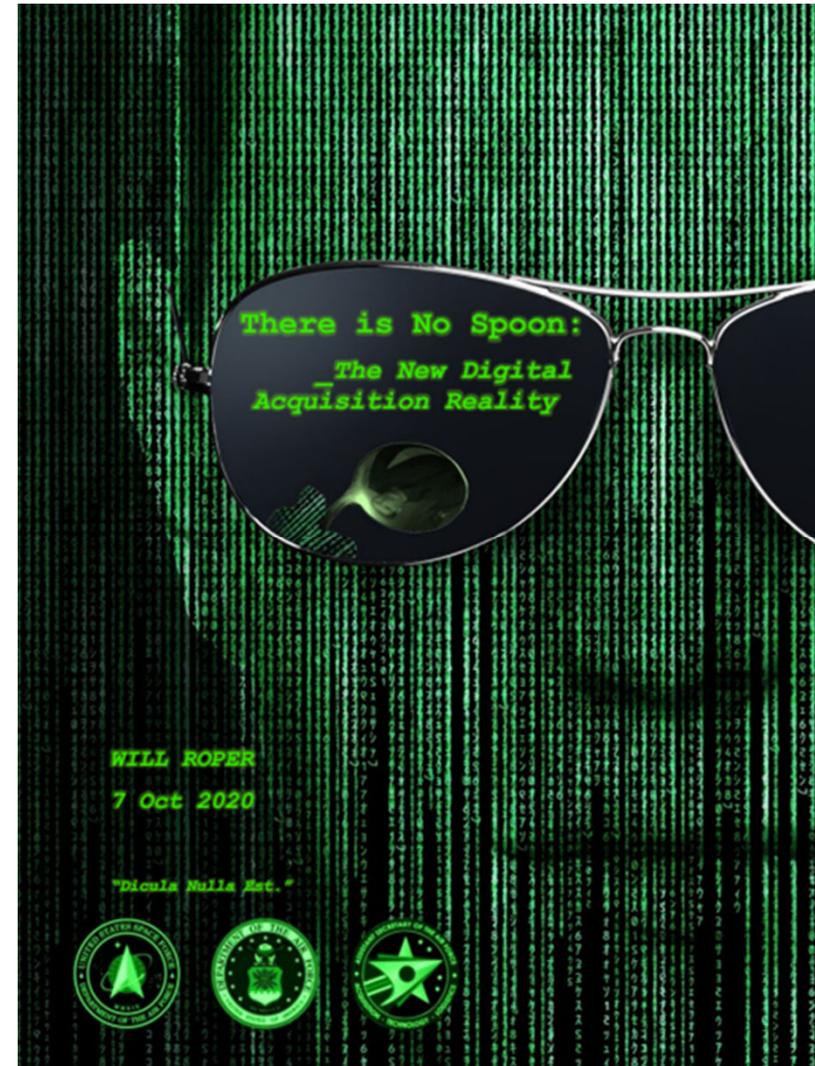
- Requesting MUs for Classified Computing Systems, Trajectory Analyses, Coupled Loads Analyses, and Integrated Thermal Analyses
- Considering feasibility of SCI vs SAP analyses



Phase 3 Government Digital Ecosystem

Maj William Deavor

Digital Innovation Chief, AAE



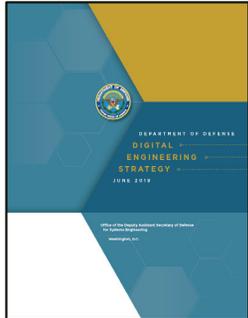
The New Digital Acquisition Reality (2020)



Digital Modernization Imperative

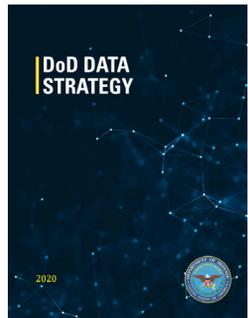
“DoD’s approach is to securely and safely connect people, processes, data, and capabilities across an end-to-end digital enterprise.”

- DoD Digital Engineering Strategy (2018)



“[Digital Modernization] will enable increased lethality for the Joint warfighter, empower new partnerships that will drive mission success, and implement new reforms enacted to improve capabilities across the information enterprise.”

- DoD Digital Modernization Strategy (2019)



“The USSF will become the world’s first fully Digital Service. We will be an interconnected, innovative, digitally dominant force.”

- Gen Raymond, USSF Vision for a Digital Service (2021)

“This Vision of a Digital Space Force is defined as: an interconnected, innovative, digitally dominant force.”



AATS Digital Vision

“You will help define our warfighting culture, build the Space Force as the first digital service, and lay the foundation of a service that is innovative and can go fast in order to stay ahead of a significant and growing threat.”

- Gen Raymond, USAFA Graduation, 18 Apr 2020

- AATS is establishing a Gov-owned secure digital ecosystem to modernize and streamline mission process and realize USSF vision for digital service
- AATS Government Digital Ecosystem will enable:
 - Development of operational tools for high tempo Phase 3 execution
 - Cross-organizational integration under one system and link current “silos of excellence”
 - Information transfer with external parties
 - Automation, streamlined processes, and rapid data driven decisions
 - Government Digital Ecosystem (GDE) provides CUI/Proprietary level security

LSP Systems Engineering Data Is Essential To Enabling AATS Digital Vision



Phase 3 DE Scope Changes on Lane 2

DE Scope Removed

- Digital Twins
- Artificial Intelligence/Machine Language
- Model Based Systems Engineering (MBSE)
- API (machine-readable) and IDE access (web-based) for “all” LSP data
- CDRL A048 (Digital Models)

DE Scope Kept

- Automated notifications for IDE changes
- Access to IDE web-based platform to assess / track req.'s and IV&V purposes

DE Scope Adjusted

- Narrowing the scope for Launch System Data requirements:
 - Focus on FCIL for defining a subset of Launch System Data
 - Keeping data access requirements (IDE and API)
- Ensuring government control of deliverables (CDRLs)
 - Submit data to the Government Digital Ecosystem (GDE)
 - Remove need for LSPs to manage an Integrated Data Environment (IDE) for CDRLs and manage govt team user access
- Digital as-built electrical and mechanical fit checks on both sides of the interface

Sections Removed

- 3.1.4.1.4 LSS: Itemized Listing of IDE Content
- 3.1.4.6.3 Data Ingestion
- 3.2.2.1 LSS: Provide API
- 3.2.4.2 LS/LSS: Launch System Configuration Reporting
- 3.2.10 System Engineering Data
- 3.2.11 LSS Digital Twin
 - 3.2.11.1 LSS: Interfaces
 - 3.2.11.2 LSS: Behavior
 - 3.2.11.3 LSS: Cloud Infrastructure Access
 - 3.2.11.4 LSS: Data Access
 - 3.2.11.5 LSS: Remote Execution
 - 3.2.11.6 LSS: Ingestible
 - 3.2.11.7 LSS: Digital Twin TIMs
- 3.3.2.5 LS: Mission Specific Technical Baseline Data
- 3.2.12 LSS: Machine Learning and Artificial Intelligence
 - 3.2.12.1 ML/AI Data Access
 - 3.2.12.2 Web Browser Access
 - 3.2.12.3 Data Format
 - 3.2.12.4 Dynamic Data Connections
 - 3.2.12.5 Inadvertent Actions
 - 3.2.12.6 Data Annotations
 - 3.2.12.7 Data Definitions
 - 3.2.12.8 Web Based Tools
 - 3.2.12.9 Image Analytics
 - 3.2.12.10 Text Analytics
 - 3.2.12.11 Data Ingestion
 - 3.2.12.12 TIMs
- 3.2.13 LSS: Digital Mission Milestone Reviews
- 3.2.14 LSS Digital Supply Chain Transaction
- 3.3.1.5 Technical Baseline (LV Family)

Digital Engineering Scope Now Targets Known Data Needs



Phase 3 DE Scope Objectives for Lane 1

Challenges

- High number of LSPs and consistent size of govt team
- Increased complexity from each LSPs IDE and delivery methodology
- Current deliverable process is extremely manually intensive and doesn't properly capture all data

Goals

- Do more with less → streamline and automate processes through software-based solutions
- Reduce/remove current manually intensive data labor requirements
- Enable leadership decision dashboard development- support real-time accurate snapshots
- Enable AI/ML types of improvements from centralized information

Scope to Address Challenges

- Standardize contract deliverables (i.e., CDRLs and Launch System Data requirements)
- Centralize data and formalize processes for all LSPs in Lane 1

Table 1. Tiered Launch System Data Framework

	Tier 0	Tier 1	Tier 2	Tier 3			
Acceptance Test Data		GDE	GDE	GDE			
Anomaly Review Board	GDE	GDE	GDE	GDE			
Closeout Photos		GDE	GDE	GDE			
Command Media	GDE	GDE	GDE	GDE			
Configuration Changes		GDE	GDE	GDE			
Drawings		GDE	GDE	GDE			
Engineering Review Board		GDE	GDE	GDE			
Environment Levels			Tier 0	Tier 1	Tier 2	Tier 3	
Environmental Reports	Production Process Changes					GDE	GDE
Failure Review Board	Production Readiness						GDE
Flight Observations	Review						
Inspection Results	Purchase Orders						GDE
Interface Control Docum	Qualification Test Data				GDE	GDE	GDE
Launch Vehicle Analysis	Quality Metrics						GDE
Reports	Refurbishment						GDE
Launch Complex Data	Risk Management Board			GDE	GDE	GDE	GDE
Launch Operations	Shipping Readiness Review					GDE	GDE
Material Certifications	Security Documents			GDE	GDE	GDE	GDE
Nonconformances	Specifications				GDE	GDE	GDE
Post Flight Telemetry	Systems Engineering Data			GDE	GDE	GDE	GDE
Pre-Launch Reviews	System Safety Data			GDE	GDE	GDE	GDE
	System Verification Review				GDE	GDE	GDE
	Technical Review Board					GDE	GDE
	Test Procedures				GDE	GDE	GDE
	Test Readiness Review					GDE	GDE
	Test Reports				GDE	GDE	GDE
	Verification Evidence			GDE	GDE	GDE	GDE
	Verification Planning Matrix			GDE	GDE	GDE	GDE
	Work Orders						GDE

Why Lane 1? Establishing Standards Is Easier Than Changing Them

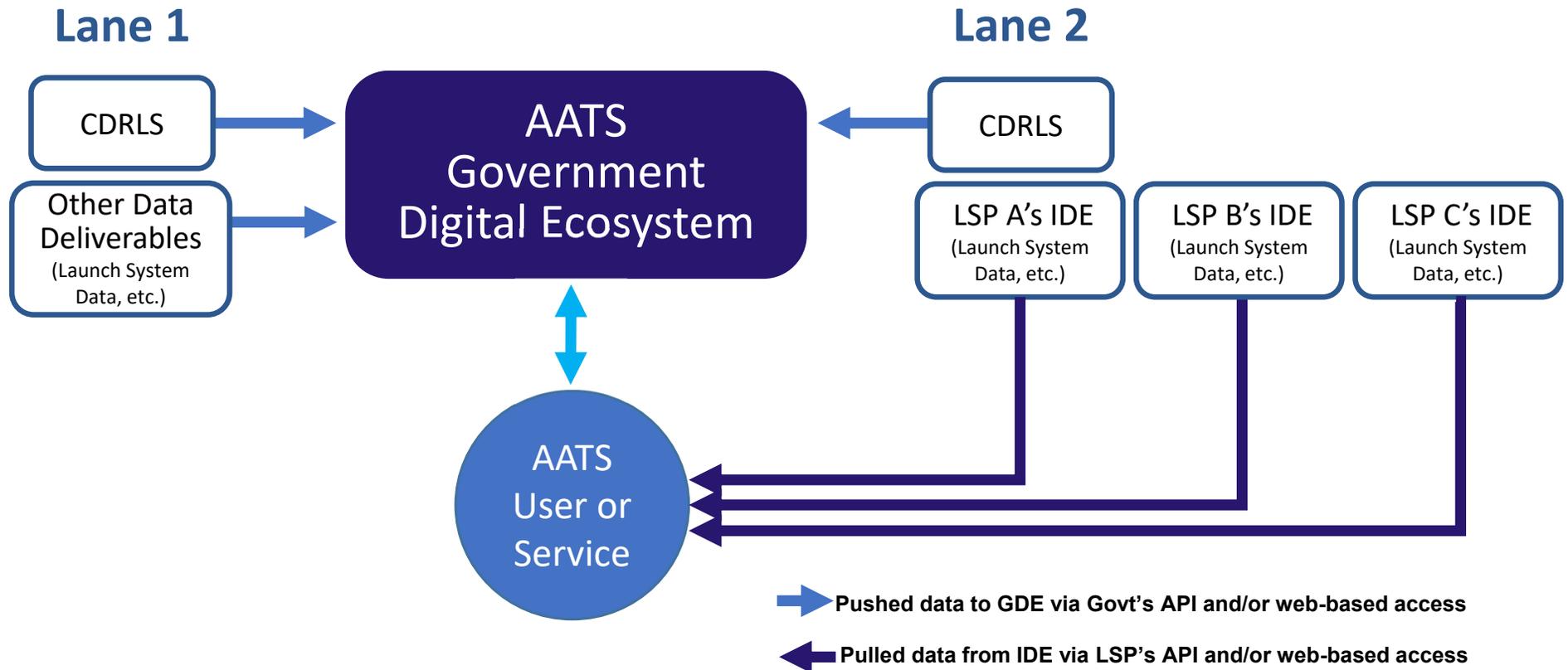


Lane 1 Launch System Data Plan for LSTO

- The Contractor shall provide a plan to provide the Launch System Data and associated Systems Engineering Boards on the Government Digital Ecosystem (GDE) in Table 1 immediately after LSRS TO award.
- For previous NSSL program and Phase 3 Lane 2 awardees, please recommend equivalent scope to be performed that would be beneficial to the Government via the Comment Resolution Matrix. See LSRS PWS 5.1.1.1.



Phase 3 Data Access Overview



**Phase 3 DE Scope Does Not Change
Incumbent IDE Methods And Utilization**



Spaceport of the Future (SOTF) SLD 30 Infrastructure and Commodities

Craig Harrison
SLD 30/PMD



Eastern/Western Range Considerations

- Real Property & Services:
 - Bidders must independently engage with the ranges for property and services
 - Bidders with existing property outgrants
 - Cannot assume continued use for NSSL Phase 3 contracts
 - Must work with the Ranges to ensure an understanding of future plans for the property
 - Bidders must anticipate the investment of private capital in space launch infrastructure
- Autonomous Flight Termination:
 - LSPs must transition to Autonomous Flight Safety System by 1 October 2025
- Utilities:
 - Cost of extending/upgrading utilities will be borne by the bidder
 - Bidders should plan to provide their own back-up/emergency site power



Eastern/Western Range Considerations

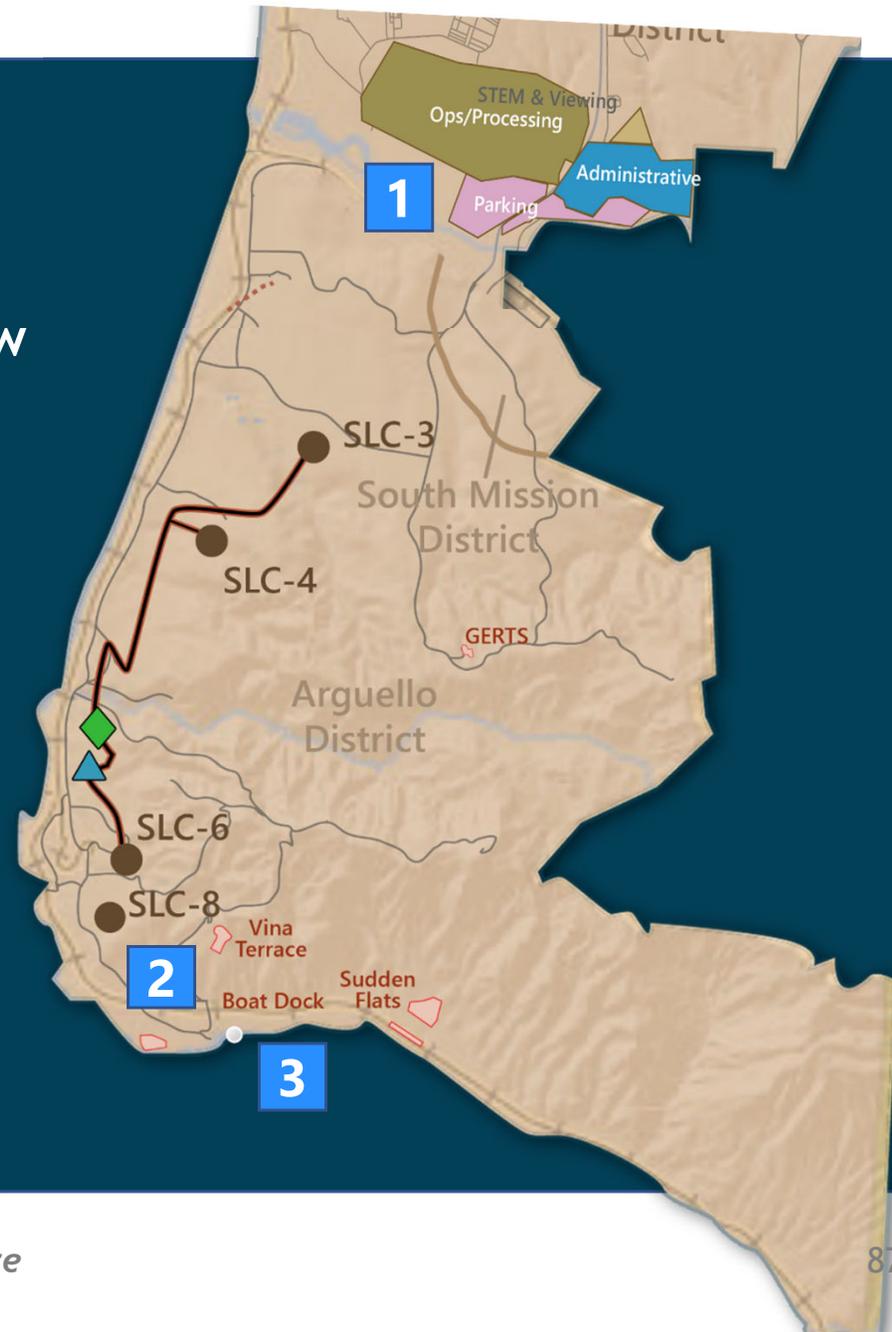
- Commodities
 - LSPs are responsible to procure all commodities either commercially or through DLA, as appropriate (IAW FAR Part 51 or 10 U.S.C.)
 - LSPs must provide storage for all commodities unless otherwise noted
 - Easements to extend/upgrade commodities must be coordinated with base agencies
 - Cost of extending/upgrading commodities will be borne by the bidders
- Air Force Petroleum Agency (AFPET) Laboratories
 - Analyzes liquid propellants, gases, cryogenic materials, petroleum products, space craft cleanliness, and hydraulic fluids
 - LSPs must verify methods, schedule tests and make payments directly with the labs



VSFB Spaceport of the Future Goals

- 1** Initial Infrastructure for Mission Development Zone (MDZ)
- 2** Develop Infrastructure Corridor to new South VSFB Sites
- 3** Improve Boat Dock and Harbor on South VSFB

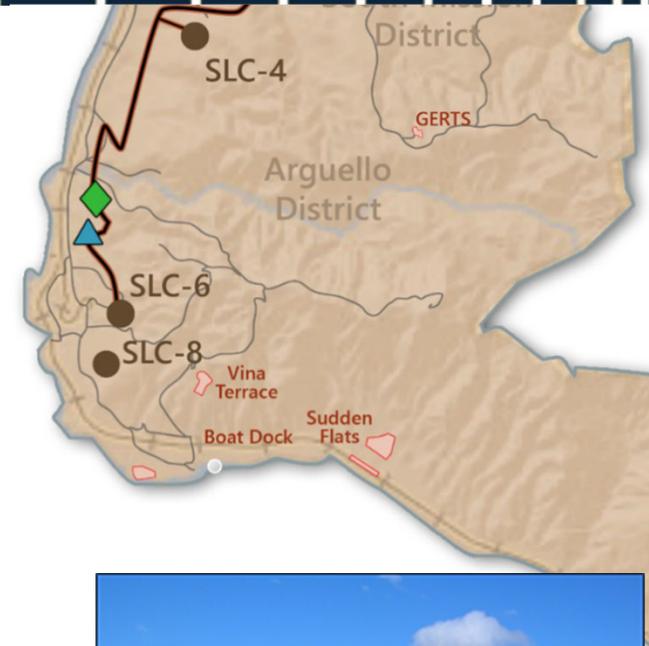
INFRASTRUCTURE	
	Operational Launch Pad
	Airfield
	GN2 Plant
	GN2 Pipeline
	South Vandenberg Power Plant (SVPP)
	Roadway
	Railway
	Rail Spur
	Boat Dock and Harbor





VSFB Infrastructure

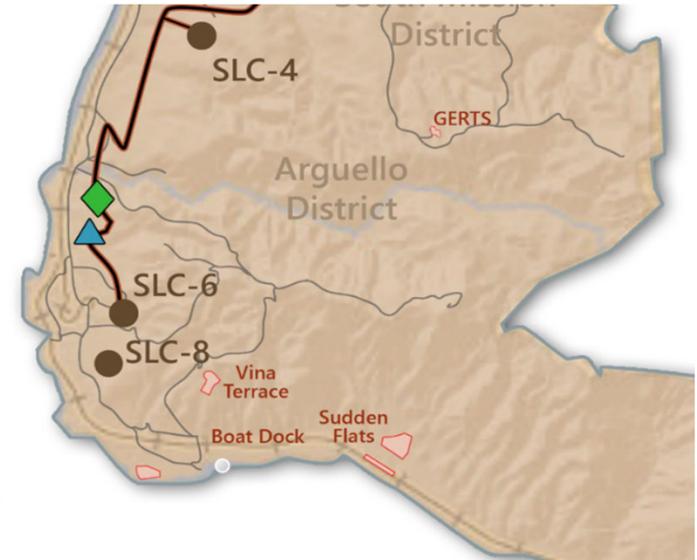
- South Vandenberg Power Plant (SVPP)
 - SLD 30 has no plans to recapitalize the SVPP
- Flightline available for hardware delivery and aerial launch operations
- Roads
 - South Base roads have limited capability to support over-sized loads
 - Bidders need to conduct surveys to determine if the roads meet their requirements
 - Bidders are responsible for improvements (e.g., widths, turn radius, pavement loading)





VSFB Infrastructure

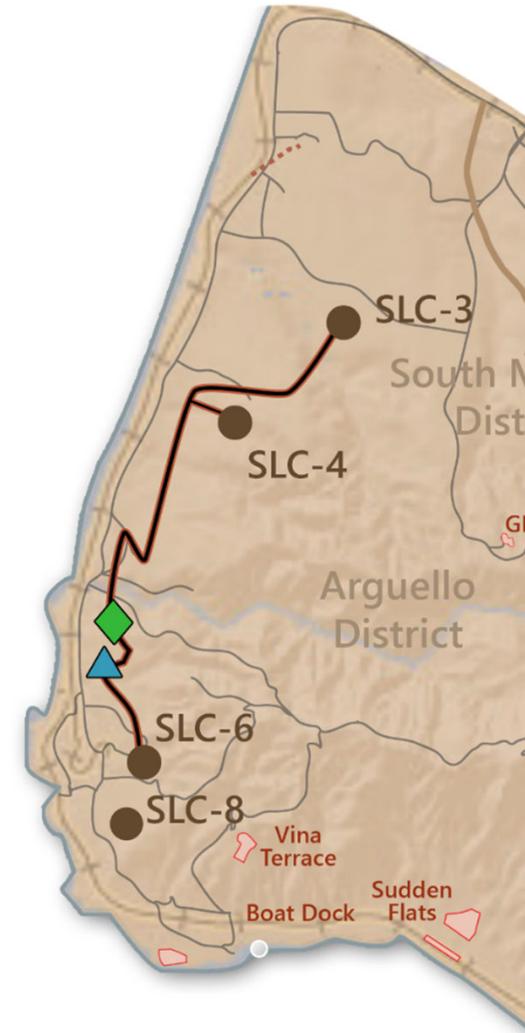
- Boat Dock and Harbor
 - Government-owned, shared, multi-use area
 - Use is subject to SLD 30 scheduling processes
 - SLD 30 holds all harbor dredge permits
 - Bidders are responsible for harbor surveys, sampling analysis, dredging
 - Bidders may be required to pay fees/expenses required for use of the boat dock and harbor area
 - Includes costs for projects, mitigation measures, etc.
- Dredging
 - Coordination must begin 3-6 months in advance of dredging
 - Dredging will be constrained by the criteria defined in the VSFB Harbor Maintenance Dredging Plan





VSFB Commodities

- Gaseous Nitrogen (GN2) Plant
 - Services SLCs 3, 4, and 6 through via a 4-inch diameter pipeline
 - SLD 30 has no plans to increase pipeline diameter nor extend it to other sites
 - Commercially owned and operated under a DLA contract to through March 2025
 - DLA does not currently plan to renew the contract
 - Future GN2 system capabilities at VSFB are uncertain and bidders should plan accordingly
- Aerospace Support Services Contract (ASSC)
 - Gaseous nitrogen and gaseous helium can be purchased via 2,400psi tube-bank trailers through the ASSC contract





VSFB Commodities

- Hypergolic Storage Facility (HSF)
 - Provides storage for DLA-procured hypergols
 - Storing commercially-procured hypergols at the HSF requires:
 - DLA Aerospace Energy approval and sales agreement
 - Coordination with multiple parties
 - May require real property outgrant
 - Allow 1-2 years for review and outgrant completion
- Commodities POCs:
 - DLA - Energy: Stephen Nichols, stephen.nichols@dla.mil
 - SLD 30 ASSC Program Manager: Antony Smith, antony.smith@spaceforce.mil



Associated Services

- Aerospace Support Services Contract (ASSC)
 - Managed by the SLD 30 Program Management Directorate (SLD 30/PMD)
 - Provides the following services; requires customer funding
 - Handling of hypergolic fuels and oxidizers, cryogenic and compressed gases supporting launch operations
 - Payload support requirements must be provided in the Program Requirement Documents (PRD)
 - Maintaining and providing Personnel Protective Equipment (PPE):
 - Self-Contained Atmospheric Protection Ensemble (SCAPE)
 - Emergency Life Support Apparatus (ELSA)
 - Emergency Breathing Apparatus (EBA)
 - Self-Contained Breathing Apparatus (SCBA)
 - Escorting convoys involving hazardous chemicals, select flight hardware and oversized loads



Spaceport of the Future (SOTF) SLD 30 Property Allocation Information

Wendi Rupp
SLD 30/XPR



SLD 30 Front Door Contacts

- Chief of Program Requirements Office (SLD 30/XPR)
 - Greg Caresio, gregory.caresio@spaceforce.mil
SLD30.XPR.ProgramRequirements@us.af.mil
- SLD 30 Planning Specialists
 - Wendi Rupp, wendi.rupp.1@spaceforce.mil
 - Robert Castaneda, roberto.castaneda@spaceforce.mil



Bidders Library Documents

- SLD 30 Program Support Guide June 2023 (CUI)
- SLD 30 Front Door Process Flowcharts
- SLD 30 Annex B to the Commercial Space Operations Support Agreement
- SLD 30 Organization Charts
- SLD 30 Launch Site Options Maps (Jun 2023)
- SLD 30 Universal Documentation System (UDS) Briefing



SLD 30 Critical Message

- Launch Service Provider relationship with SLD is that of Commercial Space Activity (not as DoD Ctr)
- Property Considerations
 - Only Green field sites and Mission Development Zone (MDZ) available for private development
 - SLD 30 cannot provide premature commitments/letter of intent
 - Environmental compliance (18-36 mos) must be finalized prior to issuance of property outgrant
 - Construction/modifications cannot begin until issuance of property outgrant
- Notice of “Opportunity to Use Property” will be posted at sam.gov for SLC 9 & SLC 11 (~ Aug2023)
- Bidders strongly encouraged to contact SLD 30/XP ASAP for additional information



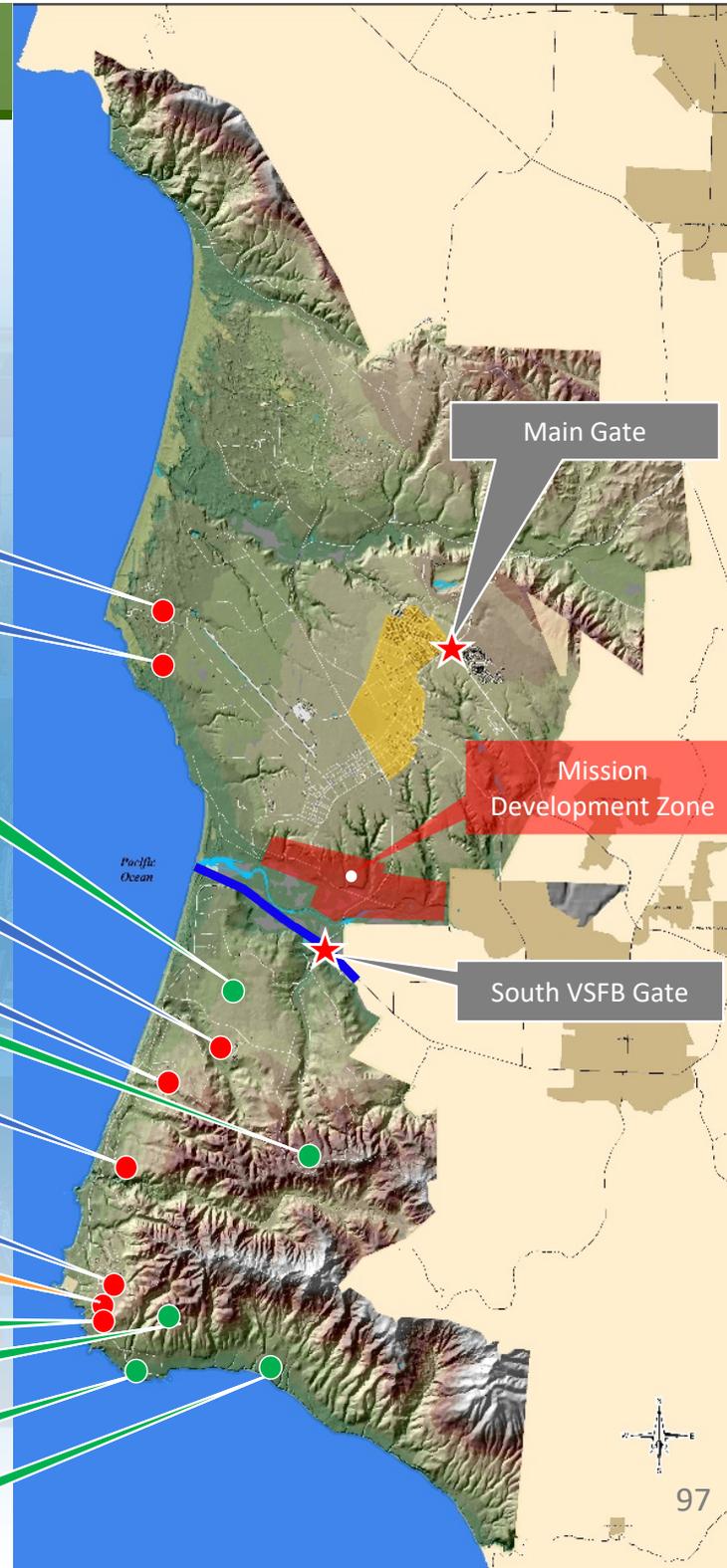
SPACE LAUNCH DELTA 30



Space Lift

SLD 30/XPR, June 2023

Assigned - Firefly	SLC 2
Planned - abl Space	576-E
Available Green field	SLC-9
Assigned - ULA	SLC-3E
Assigned - SpaceX	SLC-4
Available Greenfield - Former "GERTS" location	SLC-15
Planned future site- Phantom	SLC-5
Assigned - SpaceX	SLC-6
Multi-user site (Gov Managed)	SLC-8
Available -Partially Developed	SLC-11
Available Greenfield - Vina Terrace	SLC-7
Available Greenfield - Boathouse Flats	SLC-12
Available Greenfield - Sudden Flats	SLC-14





Spaceport of the Future (SOTF) Space Launch Delta 45 (SLD 45)

Mr. Andrew Duce
Spaceport Development Program Manager, SLD 45/CES



SLD 45 Points of Contact

Plans and Programs (XP)

- Byron Whiteman - byron.whiteman.2@spaceforce.mil
- Erin White - erin.white.7@spaceforce.mil

Civil Engineering Squadron (CES)

- Community Planning
 - 45CES.CENPL.Workflow@spaceforce.mil
 - Fred Boateng - frederick.boateng@spaceforce.mil
- Real Property
 - Patrick Giniewski - patrick.giniewski@spaceforce.mil



Commercial Space Activity Support

- Limited launch site availability left on Cape Canaveral Space Force Station (CCSFS) and limited land available to support new facilities
- New programs or significant changes to the Program Introduction (PI) should be submitted to SLD 45/XP ASAP.
- Bidders with existing real property agreements should not assume SLD 45 approval and continued use of that property for purposes other than the initial approved use.
- Bidders should not assume that current real property agreements can be extended or renewed, past the current term expiration, for other than the initial approved use.
- Any new request for land/facilities should be submitted to SLD 45/CES ASAP. Bidders should only include land/facilities in their bid that they are approved for with an approved use.



Spaceports of the Future (SPotF) Program Overview

The U.S. Space Force's Range of the Future 2028 Strategic Intent identified the requirement to increase launch posture over the next 10 years. Infrastructure must be improved to meet this new requirement.

SLD 45 Primary Goals:

- Range must be able to support launching EVERY day
- Range must be able to support MULTIPLE launches per day
- Range must eliminate ALL critical day restrictions
- Establish infrastructure redundancy and resiliency
- Reduce personnel impacts from launch and landing activities

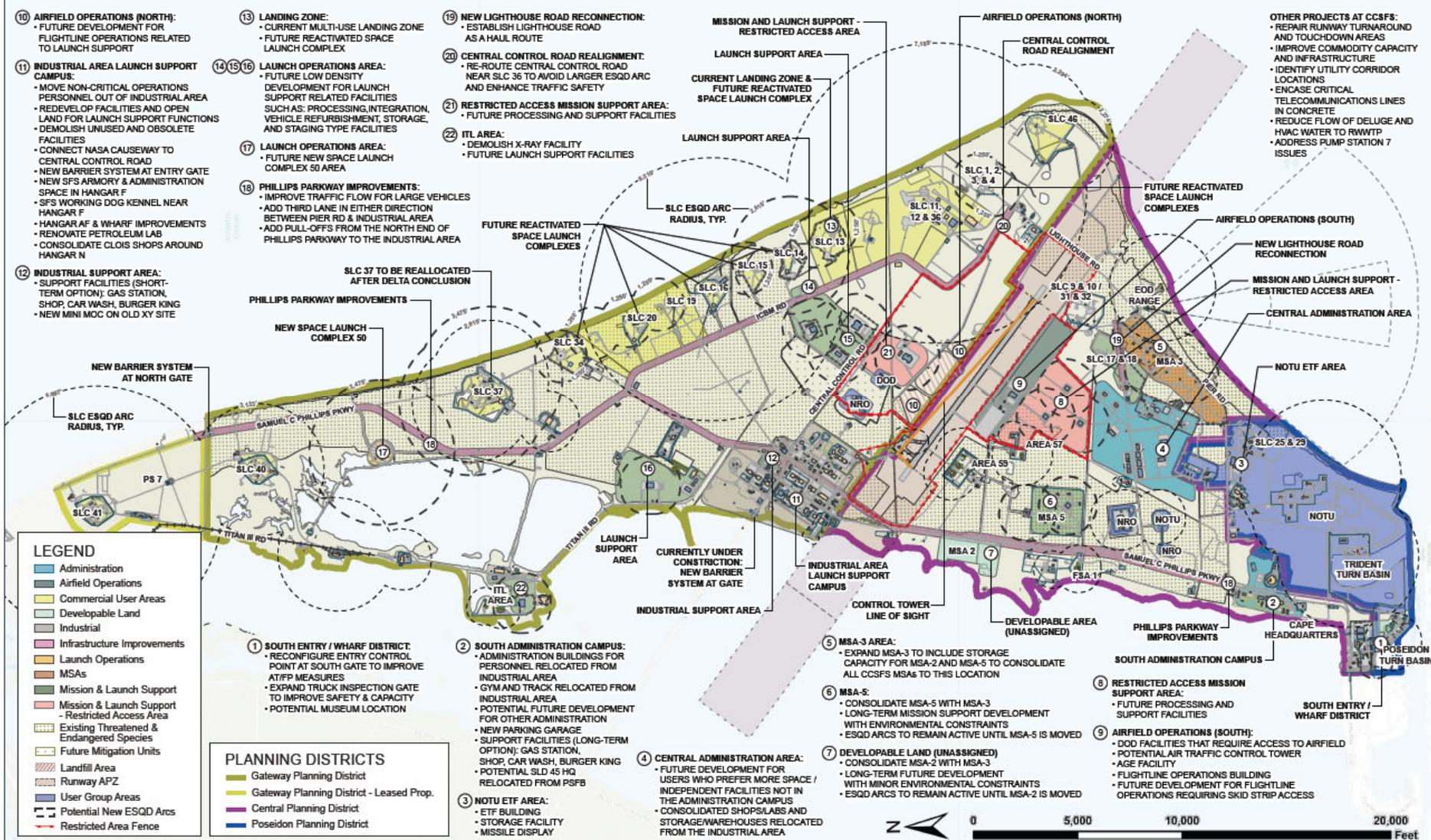
SLD 45 Secondary Goals:

- Projects must have the ability to be executed rapidly
- Reduce delays from environmental and planning processes



Spaceports of the Future (SPotF) Program Overview

CCSFS
FIGURE F.1-1: PROPOSED LAND DEVELOPMENT AREA MAP





Spaceports of the Future (SPotF) Program Overview

- OMB identified funding for program during FY24-28 Presidential Budget.
- ~\$1.3B for ER and WR infrastructure roadmaps.
- Execution of the program will be broken down by:
 - MILCON Design and Execution - AFCEC led PMO
 - FSRM Design and Execution - AATS Office led PIO and/or SLD 30 / 45
 - Program and Installation Oversight - AATS Office led PIO
 - General Base Support - SLD 30 / 45



Major Eastern Range Infrastructure and Support Changes

Customer interviews, charrettes, designs and this study have generated several major strategy changes that need to be implemented to best serve the range as it transitions to a more robust launch cadence.

Strategies that have been considered:

- Commodity Hauling on the CCSFS
- Preservation of Launch Pads
- Standardization of Launch Support Provided - Pump Station 7
- Extend Life of Cape Regional Wastewater Plant
 - Landing Pad Relocation
 - Engine Testing on CCSFS
- Creation of an Auxiliary Haul Routes
- Environmental Habitat Management



CCSFS Commodities

- LSPs operating at CCSFS are responsible to procure all commodities either commercially or through DLA, as appropriate (IAW FAR Part 51 or 10 U.S.C.)
- LSPs must provide storage for all commodities unless otherwise noted
- Cape Canaveral Space Force Station has a GHe pipeline system (6000 psi nominal operating pressure) to some locations.
 - Cost of extending or upgrading to new or existing locations will not be borne by the government and must be included in cost proposals
- Any real property easements required to extend or upgrade commodities requires coordination with base agencies, and associated costs shall be borne by the bidder



Associated Services

- Kennedy Propellant and Life Support Services (KPLSS II)
 - Managed by NASA
 - Provides the following services (List not all inclusive); Requires customer funding
 - Bulk (tanker) and Non-bulk (ie., K-bottle) Delivery Services
 - GHe, GO₂, GN₂ and Breathing Air Offload or Re-charge to receiving vessel
 - CGT Utilization
 - Demineralized Water Delivery
 - Launch Support - Ground Support Pneumatics console support during launch/major operations
 - Handling of hypergolic fuels and oxidizers, cryogenic and compressed gases for launch operations
 - Hypergolic system decontamination
 - Life Support Services for maintaining and providing Personnel Protective Equipment (PPE):
 - Self-Contained Atmospheric Protection Ensemble (SCAPE)
 - Environmental Control Units (ECU)
 - Escape Only Respirators (EOR) and training
 - Respirator Equipment Deployment
 - Self-Contained Breathing Apparatus (SCBA)
 - System Maintenance Service (Compressed systems)



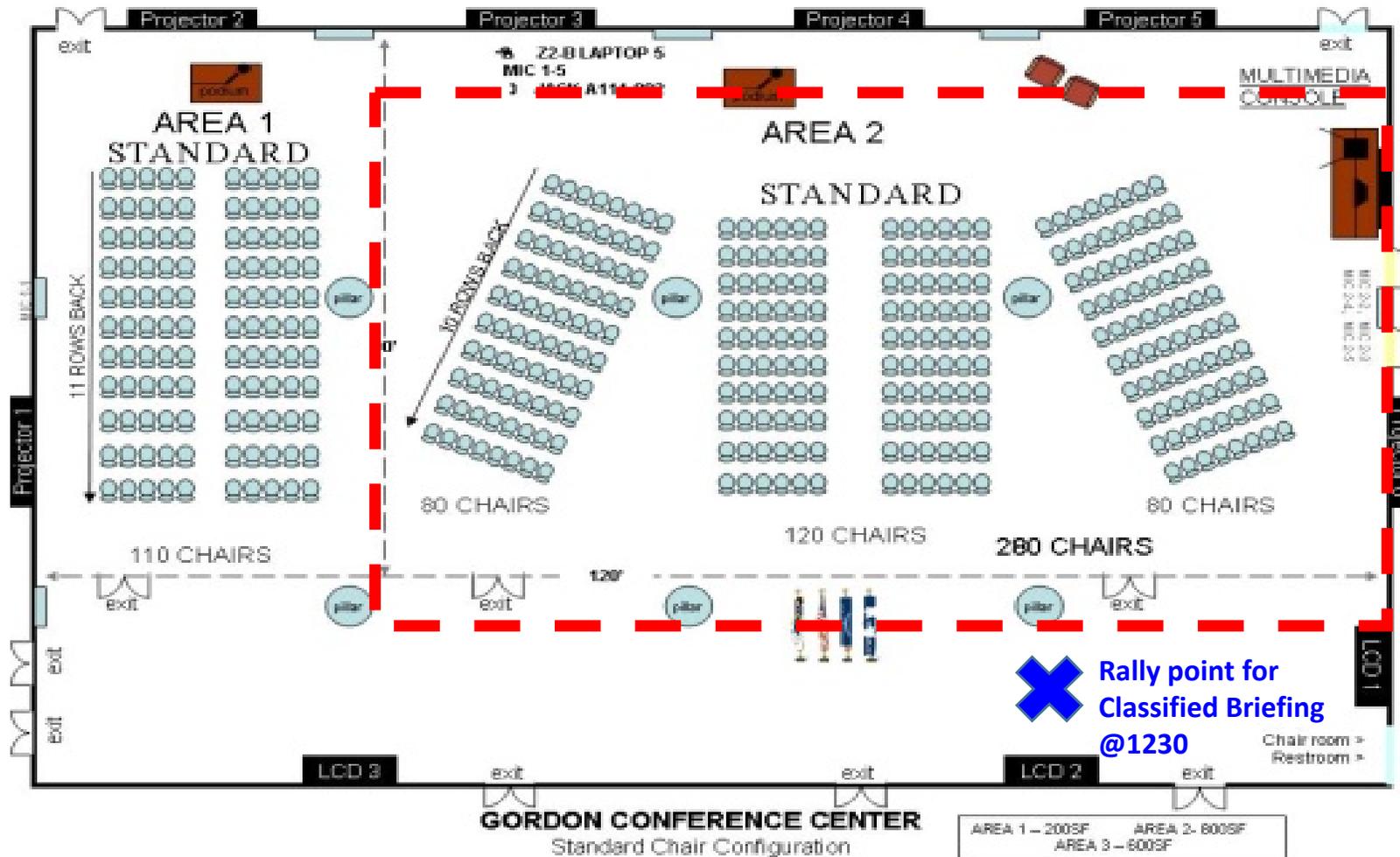
- CCSFS Lab
 - Managed by the Air Force Petroleum Agency (AFPET)
 - Conducts analyses of liquid propellants, gases, cryogenic materials, petroleum products, space craft cleanliness, and hydraulic fluids
 - LSPs must coordinate directly with the laboratory to verify test methods needed, schedule testing workloads and coordinate reimbursement for testing



Questions & Answers/ Closing Remarks



Classified Session Meeting Location Lobby of GCC





Classified Session

20 Jul	Topic	Speaker	Duration	Location
730	30 MIN CHECK-IN			GCC
800	Intro / Admin Details	Col Chad Melone	5 min	GCC
805	Rules of Engagement	Capt Bryan Smith	10 min	GCC
815	Opening Remarks	Brig Gen Panzenhagen	10 min	GCC
825	Introductions and AATS/NSSL Overview	Col Douglas Pentecost	10 min	GCC
835	Updates to Phase 3 draft RFPs #2	Col Chad Melone	10 min	GCC
845	Phase 3 Lane 1 dRFP Changes	Maj Joe Bacon	15 min	GCC
900	Lane 1 Tiered Mission Assurance	Mr Robert Van Praet	15 min	GCC
915	Phase 3 Lane 2 dRFP Changes	Maj Ryan Watson	15 min	GCC
930	Transformative Mission Assurance	Mr Robert Allen	15 min	GCC
945	NSSL Requirements & Document Changes	Mr John Wong	15 min	GCC
1000	ODMSP	Mr David Cavazos	5 min	GCC
1005	TIRP Overview	Dr Walt Lauderdale	15 min	GCC
1020	10 MIN BREAK			GCC
1030	Security Requirements	Capt Colin Johnson	15 min	GCC
1045	Digital Ecosystem	Maj Will Deavor	15 min	GCC
1100	Spaceport of the Future SLD 30	Ms Wendi Rupp	15 min	GCC
1115	Spaceport of the Future SLD 45	Mr Andrew Duce	15 min	GCC
1130	Q&A / Closing Remarks	Col Chad Melone	15 min	GCC
1145	1 HR LUNCH > TRANSITION TO BLDG 271			
1250	Classified Threat Brief	Capt Emily Meyer	45 min	Bld 271
1335	Classified NRO Lane 1 Manifest Discussion	Capt Alex Warner	30 min	Bld 271
	TRANSITION TO CR 343 (ONE-ON-ONES)			
1410-1635	One-on-One Discussions	Phase 3 Team	45 min	CR 343
21 Jul	Topic	Speaker	Duration	
0800-1700	One-on-One Discussions	Phase 3 Team	45 min	CR 343



