National Aeronautics and Space Administration

Workforce Transition Strategy Initial Report

Space Shuttle and Constellation Workforce Focus

Mr. Bill Gerstenmaier
Associate Administrator
NASA Space Operations Mission Directorate

Richard J. Gilbrech, PhD
Associate Administrator
NASA Exploration Systems Mission Directorate

March 31, 2008

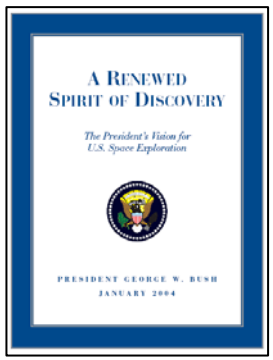
Overview

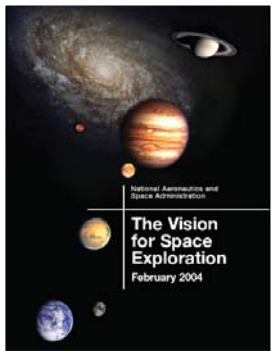
- **Transition is Complex & Challenging: Workforce Transition #1 Focus**
- **NASA will Change & Evolve: Information is Key to Learning, Planning, Developing, Optimizing, Succeeding**
- **Workforce Is Vital for Safe & Successful Execution of Exploration Mission**

U.S. Space Exploration Policy

Foundations for Exploration & Change

Vision For Space Exploration





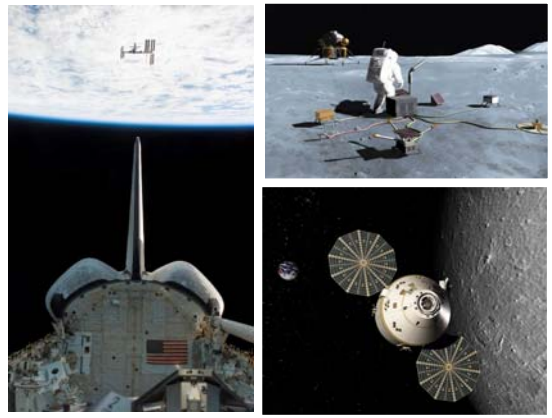
+

2005 NASA Authorization Act

…The Administrator shall establish a program to develop a sustained human presence on the Moon, including a robust precursor program, to promote exploration, science, commerce, and United States preeminence in space, and as a stepping-stone to future exploration of Mars and other destinations…

Workforce Transition Strategy Foundations

- Complete the International Space Station
- Safely fly the Space Shuttle until 2010
- Develop & fly the Crew Exploration Vehicle no later than 2014
- Return to the Moon no later than 2020
- Extend human presence across the solar system & beyond
- Implement a sustained & affordable human & robotic program
- Promote international & commercial participation in Exploration



Human Spaceflight Transition Plan

2006

NASA Transition Plan
(Update pending)

2008

NASA Workforce Strategy

2006

NASA Human Capital Plan for Mission Execution, Transition, and Retirement of the Space Shuttle Program

2006

What is NASA Transition?

NASA Transition Definition:

The careful planning, optimized utilization, and responsive disposition of processes, personnel, resources, and real and personal property, focused upon leveraging existing Shuttle and ISS assets for Exploration programs' safety and mission success

A Continuum of Transition and Recurring Development to Operations Iterations:

- Space Shuttle Program Transition & Retirement (T&R)
- ISS Program Shuttle Transition and Retirement (STaR)
- Constellation Transition(s) from Development to Operations
- Commercial Orbital Transportation Services (COTS) Transition

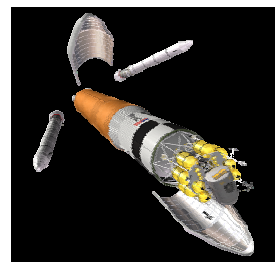
Shuttle

ISS

COTS

Ares I

Orion



Ares V

Focus on Big 3: Workforce, Infrastructure/Property, Budget/Schedule

Consolidated Appropriations Act, 2008 (PL 110-161)

"The NASA Administrator shall prepare a strategy for minimizing job losses when the National Aeronautics and Space Administration transitions from the Space Shuttle to a successor human-rated space transport vehicle."

This strategy shall include:

1. **Specific initiatives that the National Aeronautics and Space Administration has undertaken, or plans to undertake, to maximize the utilization of existing civil service and contractor workforces at each of the affected Centers;**

2. **Efforts to equitably distribute tasks and workload between the Centers to mitigate the brunt of job losses being borne by only certain Centers;**

3. **New workload, tasks, initiatives, and missions being secured for the affected Centers; and**

4. **Overall projections of future civil service and contractor workforce levels at the affected Centers.**

This Report Builds on the Work NASA Has Been Doing for Several Years

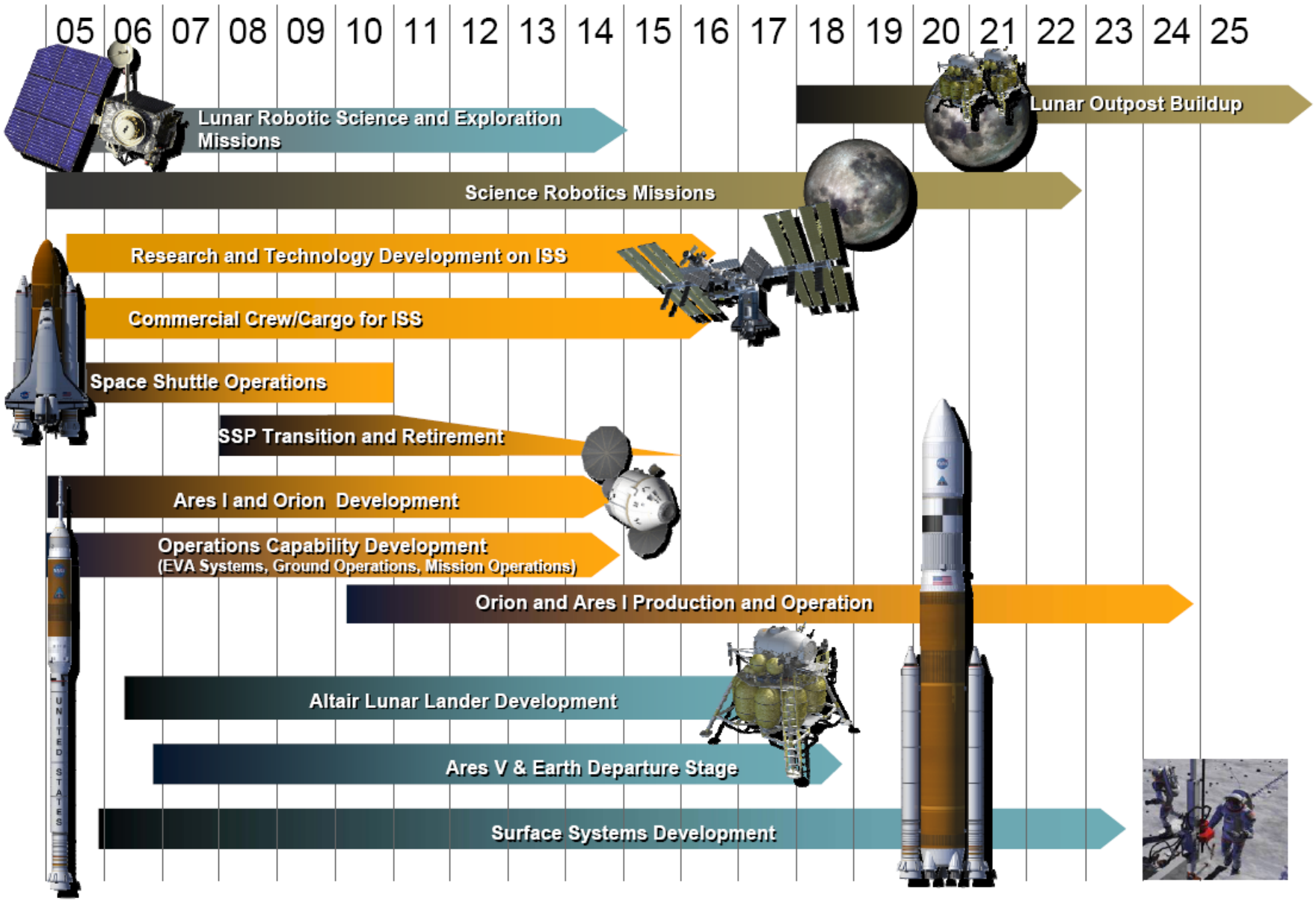
NASA Greatest…

NASA's Greatest Asset is our People

NASA Top Management Challenge is Managing Our Skilled Civil Servant and Contractor Workforce as we:

1. Safely Complete the Remaining Flight Manifest and Retire the Space Shuttle
2. Complete Assembly of the International Space Station and Operate it following Shuttle Retirement
3. Conduct the Design, Development, Test & Evaluation (DDT&E), and Initial Operations of the new Constellation Exploration Vehicles and the Systems that Support this Effort

Exploration Roadmap



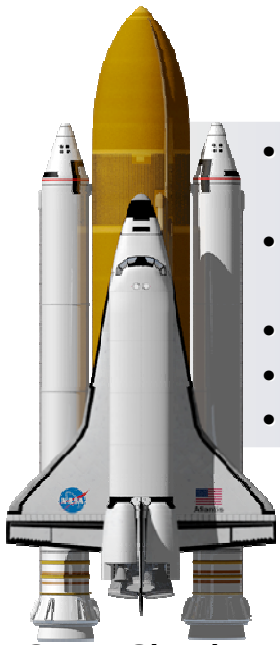
Leveraging the Ares I and Ares V Heritage: Strategic and Tactical Implications

- J-2 engine (Ares I and Ares V)
- Operational experience

Emphasize Life Cycle Cost and Risk Control

- RSRM / SRB production (Ares I and Ares V)
- External Tank fabrication facilities (Ares I, and Ares V)
- Ground processing facilities
- Mission operations facilities
- Operational experience

Saturn V

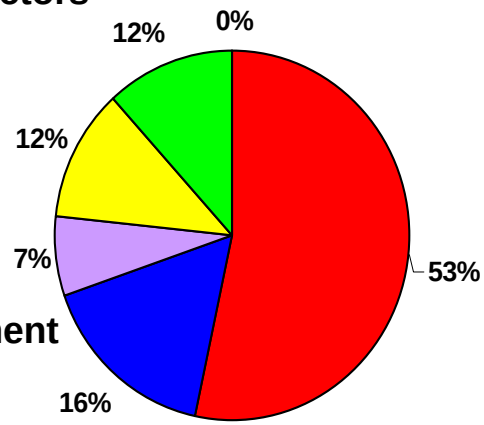

Space Shuttle

Ares I

Ares V

Scope of the Transition Challenge:
Shuttle and ISS Flight Safety is #1 Priority

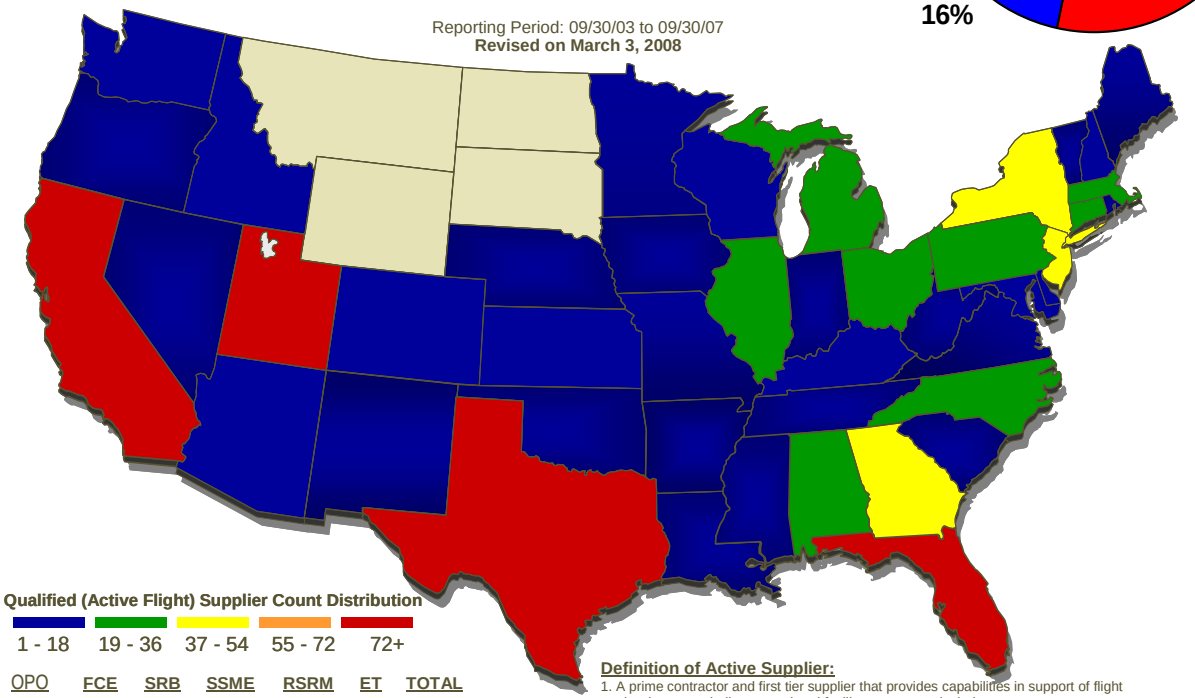
- Approximately 17,000 civil servants and contractors*
- Shuttle occupies 654 facilities
- Over 980,000 equipment line items
- Total equipment acquisition value is ~$12B
- Total facilities replacement value is ~$5.7B
- 1,500+ Suppliers: 2007 Key for ET, SSME, Element Suppliers



Equipment Items Composition

- Launch and Landing
- Orbiter & Program Office - JSC
- SSME
- ET
- Other (MOD, FCO, SLSD, Shared MSFC, RSRM, SRB)

* FY07 workforce data from SOMD RMO, 2/15/07



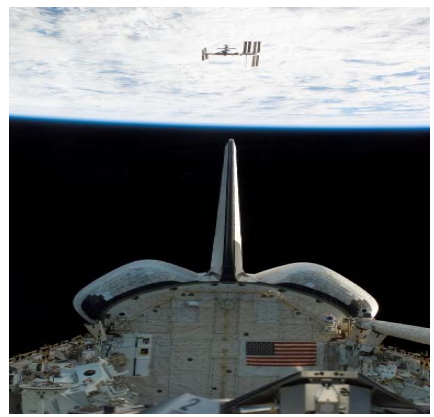
OPO	FCE	SRB	SSME	RSRM	ET	TOTAL
409	140	357	76	161	43	**1,186**

Data Source: M. Galluzzi NASA Supply Chain Manager and SSP Transition Cross-cutting Lead

Definition of Active Supplier:

1. A prime contractor and first tier supplier that provides capabilities in support of flight hardware, excluding ground and facility systems, to include:
   a. Manufacturing, b. Repair/overhaul/refurbishment/inspection, c. Teardown Test & Evaluate or other Sustaining role
2. A supplier that has received a Purchase Order for product or service in the last 48 months before October 1, 2007

*Does not include suppliers dedicated to Ground Support Equipment

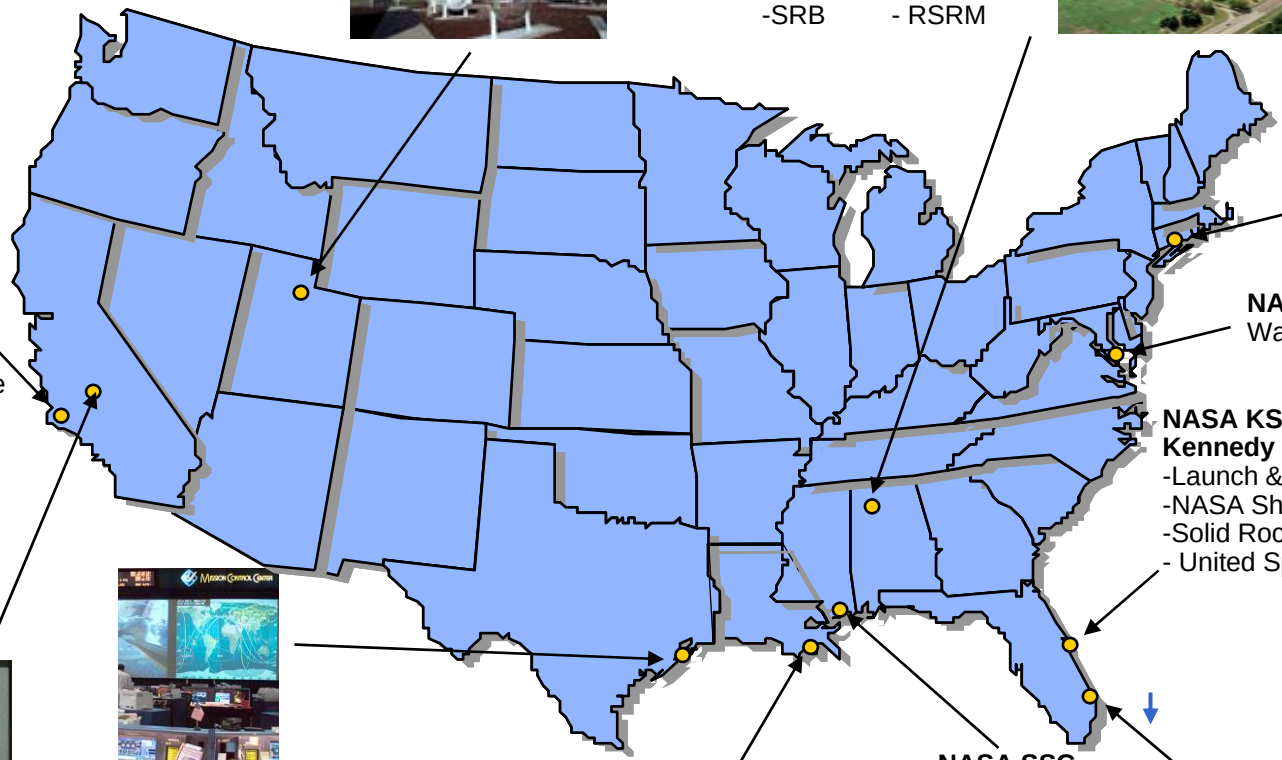


Major Space Shuttle Program Facilities

Reusable Solid Rocket Motor
ATK Thiokol Propulsion
Brigham City, Utah

NASA MSFC
Huntsville, AL
-Shuttle Projects Office
-SSME - ET
-SRB - RSRM

Space Shuttle
Main Engines
Pratt & Whitney/Rocketdyne
Canoga Park, CA



EVA Suits
Hamilton Sundstrand
Winsor Locks, CT

NASA Headquarters
Washington, D.C.

NASA KSC
Kennedy Space Center, FL
-Launch & Landing
-NASA Shuttle Log. Depot
-Solid Rocket Booster
- United Space Alliance (USA)

Alternate Landing Site
Edwards AFB, CA

NASA JSC
Houston, Texas
-Shuttle Program Office
-Program Integration
-Space Shuttle Veh. Eng. Office
(FSW, FCE, ORB, RMS)
-United Space Alliance - SFOC

External Tank
LMCO
Michoud Assembly Fac.
New Orleans, LA

NASA SSC
Bay St. Louis, MS
- SSME Test

Alternate Turbo Pumps
Pratt & Whitney
West Palm Beach, FL

CONFIGURATION CONTROLLED DOCUMENT

Document # MPIM-rev-2008-01-25-04

revised January 25, 2008

Controlling Officials: Joel Kearns (HQ/SOMD), John Olson (HQ/ESMD)

Multi-Program Integrated Milestones

Legend

Shuttle Flight | uncrewed COTS flight | uncrewed/crewed Constellation Flight | ? facility utilization TBD | X no further facility utilization identified

CY 2006 | CY 2007 | CY 2008 | CY 2009 | CY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 | FY 2020

VSE Milestone: Human Lunar Return

Lunar Reconnaissance Orbiter

International Space Station

International Partners — Soyuz, Progress, ATV, HTV

Six person crew capability

Assembly complete

Russian purchasing authority ends

NOTE: Orions 7 and 8 and COTS are contingent on ISS end-of-life date and potential for continuing U.S. ISS ops

NOTE: Orions 9 and 10 and COTS are contingent on continuing U.S. ISS ops

NOTE: Orions 11 and 12 and COTS are contingent on continuing U.S. ISS ops

NOTE: Orions 14 and 16 and COTS are contingent on continuing U.S. ISS ops

NOTE: Orions 18 and 20 and COTS are contingent on continuing U.S. ISS ops

NOTE: The potential for ISS operations from 2016 – 2020 is under review

NOTE: ULF4 and ULF5 are manifested as contingency ISS logistics flights.

Space Shuttle

12A.1 | 13A | 13A.1 | 10A | 1E | 1J/A | 1J | HST SM4 | ULF2 | 15A | 2J/A | 17A | ULF3 | 20A | 19A | ULF4 | ULF5

116 | 117 | 118 | 120 | 122 | 123 | 124 | 125 | 126 | 119 | 127 | 128 | 129 | 130 | 131 | 132 | 133

Last SSME on-dock at KSC

Atlantis retired

NOTE: Atlantis retirement under review.

Last ET on-dock at KSC

Discovery retired

Endeavour retired

COTS

SpaceX: Demo 1 PDR, Demo 1 CDR, Financing round 2, Demo 3 CDR, Financing round 1, Demo 3 SRR, Demo 3 PDR, Financing round 3, Demo 2 SRR, Demo 2 PDR, Demo 2 CDR, SpaceX Demo 1, SpaceX Demo 2, SpaceX Demo 3, IOC

RpK: Alternate Provider

COTS Phase I

Facilities

SSP last-need for O&C

SSP last-need for A-1

SSP last-need for LCC Firing Room 1; transfer to Cx for modifications

LC-39B configuration for last SSP flight off pad

SSP last-need for MLP 1

LC-39B and MLP 1 configuration for Ares I-X

LC-39B configuration for Ares I-Y

SSP last-need for VAB HB 4

SSP last-need date for LC-39A

SSP last-need for VAB HB 3

SSP last-need for VAB LB and HB 1

SSP last-need for CT 1 and 2

SSP last-need for OPF 1,2, and 3

SSP last-need for MLP 2

SSP last-need for MLP 3

LC-39A configuration for Ares V

A-1 ready for Cx testing

SSP last-need for VAB HB 2

SSP last –need for A-2

A-2 ready for Cx testing

A-3 ready for Cx testing

Constellation

Sub-Orbital: Pad Abort 1; Ares I-X 4 seg. 1st stage, dummy u/s; AA-1 transonic; Pad Abort 2; AA-2 max-q; AA-3 tumble; Ares I-Y 5 seg 1st stage, dummy u/s

NOTE: Sub-orbital test flights prior to Orion 1 subject to change with test experience and funding requirements.

Orion 1 (5 seg 1st stage, active u/s, active Orion capsule) | Orion 2 IOC hot flight LIDS | Orion 3 hot flight LIDS | Orion 4 FOC | Orion IOC

Ares V-Y | Altair 1 / Orion 13 | Altair 2 / Orion 15 | Altair 3 / Orion 17 | Altair 4 / Orion 19

Initial Capability (IC) Level 1 SRR | IC Level 1 SDR | IC Level 1 PDR 1 | IC Level 1 PDR 2 | IC Level 1 CDR | IC Level 1 SAR

Orion SRR | Orion SDR | Orion pre-NAR | Orion PDR | Orion CDR | Orion DCR and SAR

Ares I SRR | Ares I-X PDR | Ares I SDR and pre-NAR | Ares I PDR and NAR | Ares I CDR | J-2X MPTA U/S need date | Ares I U/S DCR

J-2X SRR | J-2X PDR | Ares I-X CDR | Ares I U/S PDR | J-2X CDR | Ares I U/S CDR | Start of J-2X testing on A3 | J-2X DCR | Ares I DCR

Ares I 1st stage SRR | Ares 1 U/S SRR | Ares I U/S SDR | Ares I 1st stage PDR | Ares I 1st stage CDR | Ares I 1st stage DCR

NOTE: The shadowed Orion 2 IOC flight in 2013 is the programmatic manifest date at the 33% confidence level. The bold Orion IOC in 2015 flight is the current Agency commitment at the 65% funding confidence level for the flight manifest.

Lunar Capability (LC) Level 1 SRR | LC Level 1 SDR | LC Level 1 PDR | LC Level 1 CDR | LC Level 1 SAR

Ares V project SRR | Ares V project PDR | Ares V project CDR | Ares V project DCR

Altair project SRR | Altair project PDR | Altair project CDR | Altair project DCR

RSRM

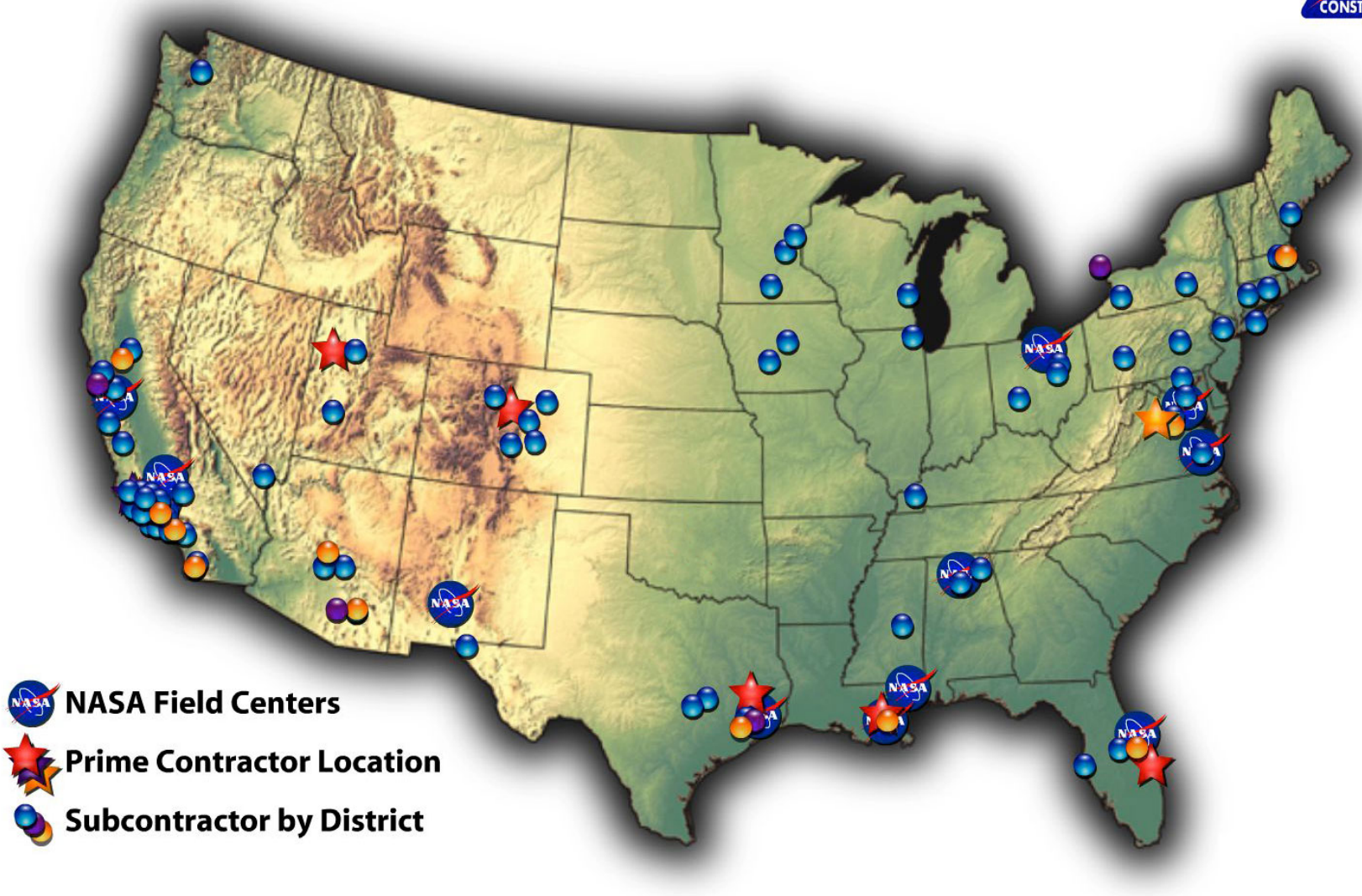
NOTE: Reusable Solid Rocket Motor segment production

0 Constellation 35 Shuttle | 5 Constellation 35 Shuttle | 10 Constellation 35 Shuttle | 10 Constellation 0 Shuttle | 12 Constellation | 13 Constellation | 15 Constellation | 15 Constellation | 15 Constellation | 19 Constellation | 27 Constellation | 31 Constellation | 30 Constellation | 41 Constellation

available online at
www.nasa.gov/transition

Constellation and COTS:
The Future Requirements Drivers!

Constellation Program Work Locations



Constellation Leverages Unique Skills and Capabilities Throughout NASA Centers

Dryden
- Lead Abort Flight Test Integration/Operations
- Abort Test Booster procurement
- Flight Test Article Development/ Integration

Ames
- Lead Thermal Protectio System ADP
- Aero-Aerothermal database
- Ares Abort simulations
- Software and GN&C support

Glenn
- Lead Service Module and Spacecraft Adapter integration
- Flight Test Article “Pathfinder” fabrication
- Ares I-1 upper stage simulator lead
- Ares power, TVC and sensors lead
- J-2X altitude/inspace testing
- SE&I Support
- EVA Power, Communications, Avionics, and Informatics Lead

Goddard
- Communications Support

Langley
- Lead Launch Abort System integration
- Lead landing system ADP
- Ares I-1 vehicle integration
- Ares aerodynamics lead
- SE&I Support

JPL
- Thermal Protection System support

Kennedy
- Home for Ground Ops Project
- Ground processing
- Launch operations
- Recovery operations

Johnson
- Home for Program
- Home for Projects: Orion, Mission Ops, EVA, Lunar Lander
- Lead Crew Module integration
- Orion Spacecraft Integration
- GFE projects management
- Flight Test Program

Stennis
- Rocket Propulsion Testing for Ares

Marshall
- Home for Ares Project
- Ares I and V development and integration lead
- LAS and SM SE&I Support

NASA Human Spaceflight Workforce Goals

- **Enable a capable and committed workforce to safely fly the Shuttle until retirement in 2010 and complete the International Space Station.**
- **Provide workforce required for Constellation during Shuttle manifest flyout through the first Constellation mission and beyond.**
- **Retain critical skills through the gap between the last Shuttle mission and the first Constellation mission.**
- **Use the Shuttle and ISS industry workforce to the maximum extent required to implement Constellation.**
- **Maintain 10 “healthy” NASA Centers.**
- **Identify and manage workforce geographic dislocation.**
- **Maximize workforce efficiency and knowledge transfer through workforce sharing and synergy among NASA programs.**

Key Report Messages

- Focus Change: NASA is moving our workforce from Shuttle and ISS operations work to CxP design and development
- Budget: Overall, NASA will spend the same amount on skilled labor, but with a new emphasis on design of new vehicles to explore beyond low earth orbit. Leaner Across the Board, More Development
- Reduce Fixed & Ops Costs: New vehicles must cost less to operate, or we cannot afford to develop the vehicles to explore beyond earth orbit. Must drop production, processing and operations costs
- Geographical & Skill Shifts: Regional workforce impacts of shifting from "vehicle processing" and "operations" to development are becoming clearer. Reducing regional impacts requires assignment of specific Constellation development, test & manufacturing activities
- Details Evolving: Future procurements, contractor selections, and refined lunar requirements will yield more details in 2008 and 2009

NASA is Executing the 1st Change in U.S. Civil Space Policy in 35 Years: This Transition Will Result in Re-Invention and Re-Invigoration of NASA

Transition Workforce Objectives and Key Messages

- **NASA's Human Spaceflight Workforce Objective:**
  - ***Retaining Skills for Shuttle Operations*** to Safely Execute Remaining Shuttle Missions; ***and***
  - ***Managing Transition*** of Appropriate Shuttle Workforce into Constellation Development; ***and***
  - ***Retaining Skills After Shuttle Retirement*** that are Needed to Safely Prepare for and Execute Constellation Initial Operational Capability (IOC) in 2015 and Flight Operations Beyond
  - ***Maintain "10 Healthy Centers"***
  - ***Program Requirements Will Drive*** our workforce and skill needs
- **Approach to Ensure Critical Skills Retained:**
  - Provide Challenging, Exciting Follow-on Work in Constellation (and Other Programs)
- **NASA is Committed to Transitioning as Much of the Shuttle Civil Service Workforce to Other Agency Programs as is Necessary, Using Strategies such as:**
  - Workforce Sharing, Matrixing, Detailing, Retraining, Skills Assessment and Org Matching
- **NASA Buys Products & Services from Industry and Does NOT Determine Workforce Levels**
  - However, NASA has made a substantial investment in unique skills training
- **NASA is Committed to Working with the Aerospace Contractor Community and our Shuttle Contractor Partners on Workforce Issues.**
  - Industry has a Range of Transition, Retention, and Staffing Tools Available to Maintain Critical Skills to Meet their Contractual Obligations Required for Shuttle Mission Execution.
  - Unique to Each Contractor Situation and their Known Role in Future Constellation Work






Workforce Transition Initiatives

- **Space Shuttle Workforce Survey - Input to Transition Metrics**
- **Strategic Workforce Management Model (SWMM)**
- **Office of Human Capital Management (OHCM) Initiatives**
  - Space Shuttle Program (SSP) to Constellation Program (CxP) Workforce Mapping Activity
    - Position Agency to manage the transition of SSP skills to CxP
    - Provide info needed for appropriate strategies/solutions to support transition
    - Surface potential problems & test assumptions to develop mitigation actions
- **Key team members & stakeholders engaged in mapping with OHCM**
  - Transition Managers, Center Transition Mgrs, SSP Human Capital Leads, PA&E
- **SSP to CxP Mapping activity scope and schedule**
  - Phase I (Jun 07-Jan 08) – Civil Servants
    - Initial mapping assessment focus on SSP Civil Service workforce
  - Phase II (Nov 08 to Present, Nearly Complete) -- Contractors
    - Refine Civil Servant assessments, Initial contractor mapping assessment
  - Later Phases
    - Add more detail and update initial assessments as CxP planning matures
    - Plan against additional realistic scenarios in addition to budgeted baseline
    - Expand to All 10 Centers and Project through 2020 to Capture Lunar Work

Goals: Retain Skills for SSP Ops, Manage SSP-to-CxP Transition, Manage Gap

Initiative: Shuttle Workforce Survey Results

- **2007 Shuttle Employee Survey involved over 2,800 civil service employees at KSC, JSC, MSFC, and SSC**

- **General observations from 2007's survey include:**
  - Continues to be a great deal of goodwill toward Shuttle Program
  - 65% of employees indicated they will stay until the end of the program
  - Employees are nervous about their own and NASA's future
  - Concern about having meaningful work & job security--now and in future
  - Concern about funding stability of Constellation

- **Observations indicate a continuing need to improve communications at the Agency, Center, and program level.**
  - **Agency level:** Share the U.S. Space Exploration Policy, plans & vision
  - **Center level:** Must address workforce issues and concerns
  - **Program level:** Human space flight programs have to provide status of Space Shuttle transition & retirement activities, new contracts and program progress.

Initiative: Transition Communications

Top-Down, Bottoms-Up, In and Out Transition Communication

- Transparency, Accuracy, Clarity, Brevity: the Facts in a Timely Manner

Clear & Consistent Communication

T&R Monthly Activity Report

- Distributed broadly
- Provides a monthly snapshot of what everyone is working on
- Requires short-term goal setting
- Quick way to track progress

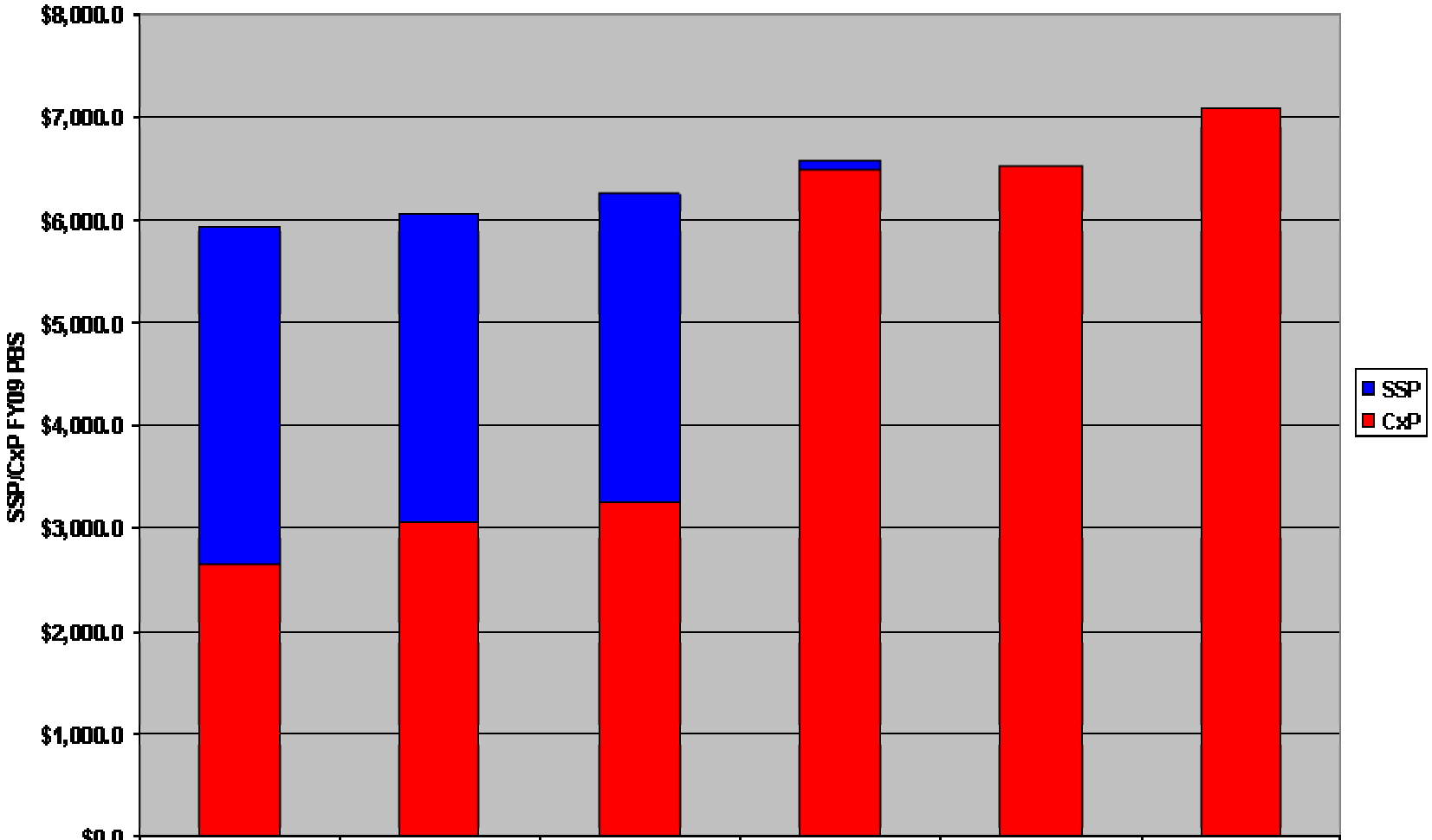
T&R Issue Report

- Compiled for managers review at TQPMR
- Helps identify temporary vs. serious roadblocks
- Stimulates discussion about shared (or not) experiences across centers

- **Transition Website: www.nasa.gov/transition**

- **Strategic Communications Media:** NASA TV, Transition Summit, Transition Town Hall Meetings, Transition Talking Points, Transition Weekly Meetings

Space Shuttle and Constellation
FY 2009 Budget Runouts

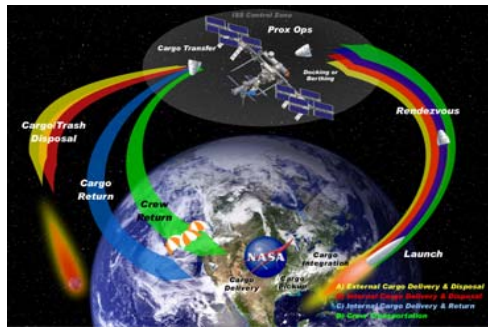


	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
SSP	$3,281.3	$2,997.8	$3,001.3	$95.7	$0.0	$0.0
CxP	$2,644.7	$3,048.2	$3,252.8	$6,479.5	$6,521.4	$7,080.5

Workforce Projections, Caveats & Details

What's NOT included in the projections (or not fully developed):

- **Workforce for lunar activities (Ares V, Altair Lunar Lander) and other contracts yet to be awarded**
- **Unallocated Reserves for Orion, Ares I, Ares V & Altair**
- **Commercial Orbital Transportation Services (COTS)**
- **Construction of Facilities**
- **Shuttle Retirement and Transition**



Details:

- **Shuttle work is well defined & predictable**
- **Low/Lean Shuttle budget reserves, thus little change in distribution of Shuttle workforce between the Centers**
- **Ares I, and Orion projects in early phases: production, assembly, and launch site work is still not fully defined, nor are contractor WYEs fully mapped to work locations**
- **NASA planning the contract work for vehicle processing and operations. Less vehicle processing and operations labor will be needed than Shuttle**

Thus, the Following Projections are Estimates…

Space Shuttle and Constellation Workforce Demand Estimates

as of March 2008 – NOTE CAVEATS BELOW

Space Shuttle and Constellation Workforce Estimates - as of March 2008

NOTE CAVEATS BELOW

Category	FY08	FY09	FY08-09 Delta	FY10	FY09-10 Delta	FY11	FY10-11 Delta	FY12	FY11-12 Delta	FY13	FY12-13 Delta
Nationwide											
Shuttle + Constellation FTEs	4,700	4,400	-300	4,200	-200	4,100	-100	4,200	100	4,300	100
Shuttle + Constellation WYEs (low)	20,900	20,200	-700	18,700	-1,500	12,500	-6,200	14,100	1,600	15,100	1,000
Shuttle + Constellation WYEs (high)	21,000	20,300	-700	19,100	-1,200	13,800	-5,300	15,700	1,900	17,000	1,300
Kennedy Space Center											
Shuttle + Constellation FTEs	1,000	1,000	0	1,000	0	1,000	0	1,000	0	1,000	0
Shuttle + Constellation WYEs (low)	8,000	7,300	-700	6,400	-900	1,600	-4,800	2,200	600	2,400	200
Shuttle + Constellation WYEs (high)	8,000	7,400	-600	6,700	-700	2,300	-4,400	3,100	800	3,800	700
Johnson Space Center											
Shuttle + Constellation FTEs	1,400	1,400	0	1,400	0	1,200	-200	1,200	0	1,300	100
Shuttle + Constellation WYEs (low)	5,900	6,000	100	6,000	0	3,700	-2,300	3,800	100	3,500	-300
Shuttle + Constellation WYEs (high)	5,900	6,200	300	6,600	400	5,500	-1,100	5,700	200	5,800	100
Marshall Space Flight Center											
Shuttle + Constellation FTEs	1,200	1,200	0	1,200	0	1,200	0	1,300	100	1,300	0
Shuttle + Constellation WYEs (low)	2,700	2,900	200	2,900	0	2,800	-100	3,000	200	3,100	100
Shuttle + Constellation WYEs (high)	2,700	3,100	400	3,500	400	4,400	900	5,100	700	5,500	400
Stennis Space Center											
Shuttle + Constellation FTEs	100	100	0	100	0	100	0	100	0	100	0
Shuttle + Constellation WYEs (low)	300	300	0	300	0	200	-100	200	0	100	-100
Shuttle + Constellation WYEs (high)	300	300	0	300	0	200	-100	200	0	100	-100
Michoud Assembly Facility											
Shuttle + Constellation WYEs (low)	1,900	1,400	-500	800	-600	600	-200	600	0	600	0
Shuttle + Constellation WYEs (high)	1,900	1,400	-500	800	-600	1,100	300	1,100	0	1,100	0

Increasing Uncertainty

Caveats:

1) This table covers civil service and contractor personnel working on the Space Shuttle and Constellation programs at the Centers noted; it does not display the total Center workforce, and it does not include students involved with the programs.

2) "Nationwide" workforce estimates include personnel working on the Shuttle and Constellation programs beyond the Centers noted in the table.

3) FTE = Civil Servant Full Time Equivalent.

4) WYE = Contractor Work Year Equivalent.

5) See pages 19 - 20 of the March 2008 Workforce Transition Strategy, "Workforce Projections", for further notes on this table.

Critical Work During the Gap:
The Future (Ares I-X Test Flight) Is Just 12 Months Away!

The 2010-2015 Gap will include Requirements Development, Planning, Construction, Testing, Evaluation, Procedures and Checklist Development, Systems Integration, Training, and Production…Engaging our Workforce!

Demonstrate and collect key data on:

- **Vehicle controllability**
- **Staging/separation**
- **Roll control**
- **KSC launch ops**
- **Aerodynamics and vehicle loads**
- **Atmospheric entry dynamics for recovery**

NASA Transition Summary

- **Transition is Challenging, Complex, and Dynamic**

- **Workforce Plans & Estimates Continue to Mature**
  - NASA Transition Plan (Spring 2008 Release)
  - Shuttle to Constellation Workforce Mapping Activity
  - FY 2010 Budget Formulation

- **FY2011+ Transition & Retirement (T&R), Future Contracts & Gap Issues**
  - Post-Shuttle Workforce skill needs will shift -- We are preparing
  - Longer “Gap” = Greater difficulty in mitigating workforce & facility impacts

- **NASA will Generally Spend Same Amount on Labor Nation-wide, but Change Emphasis Toward Development of New Exploration Systems. The impacts will vary by function**

NASA is not going out of business…
Transition Enables a New Line of NASA Business for the Next 30-50 Years!
Our Workforce Is The Future!

Questions?