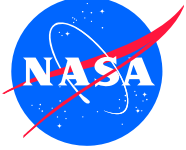


# **Innovative Business Agreements and Resulting Cost/Pricing Methods & Policies at NASA in Support of New Commercial Programs**

**JIM ROBERTS & TERRY LAMBING**

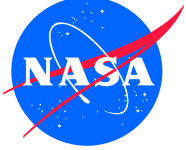
**NASA Kennedy Space Center  
Office of the CFO**

**ICEAA National Conference  
June 2013**



## **Background..**

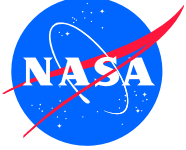
- **Immediately after Shuttle retirement decision in 2004, transition planning for NASA's facilities was begun.**
- **In April 2010 President Obama delivered a speech at Kennedy Space Center in which he outlined his new vision for the U.S. space program. Emphasis was placed on enabling the exploration of Space by Commercial entities instead of by Government.**
- **The Constellation Program - which was to fill the void of the retiring Space Shuttle Program - was cancelled.**
- **Facilities no longer needed for remaining NASA programs were identified, and NASA Centers were charged with leveraging value of underutilized property through initiatives such as out-leasing.**
- **Focus was placed on development of Commercial Business Partnerships to enable commercial space activities using unused or available facilities and launch infrastructure.**



## Kennedy Space Center - Launch Infrastructure

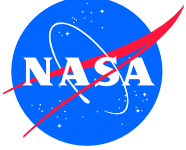


- Vehicle Assembly Building
  - 8 Acre Footprint, 525' Tall
  - 30,000 SF Each
  - Fuel/Oxidizer Tank
    - Capacity of 1.8 M Gal
  - 15,000' Runway, 300' Wide
- 3 Orbiter Processing Facilities
  - 200,000 SF 1378 Office Space
- Launch Pads A&B
  - 189,000 SF 860 Office Space
- Shuttle Landing Facility
  - 230,000 SF 237 Office Space
- Operations Support Building
  - 3-story, 230,000 SF
- Operations Support Building II
- Launch Control Center (4 control rooms)
- Logistics Facility



## **New Roles for Kennedy Space Center:**

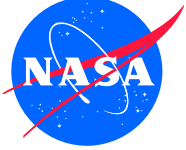
- **NASA is providing a new heavy lift processing and launch capability**
- **NASA is transforming to have Low Earth Orbit (LEO) access (cargo and crew) via commercial providers**
- **Commercial Space policy strives to maximize the commercial use of space**
- **KSC's role as a traditional single user launch complex is transforming to become a true spaceport supporting multiple users (programmatic, commercial, public)**
- **KSC Goals include:**
  - Supporting both government and commercial vehicle and payload processing and launch
  - Enabling commercial partners to locate life-cycle functions at KSC
  - Facilitating government / commercial common-use processing facilities



## NASA Authority and Guidance

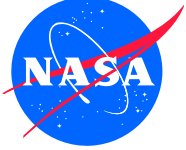
- **The National Aeronautics and Space Act**
- **The Economy Act**
- **The Commercial Space Launch Act**
- **NASA 2011 Strategic Plan**
- **The National Space Policy of the United States of America (2010)**
- **NPR 9090.1A - Reimbursable Agreements**
- **NAI 1050.1 Space Act Agreements Guide**
- **NPD 1050.1I – Authority to enter into Space Act Agreements**
- **NPR 8800.15B - NASA Real Estate Management Program**
- **NPD 8810.2 - Master Planning for Real Property**

***NASA has legal authority to provide facilities, equipment, and services to non Federal entities on a non-interference basis.***



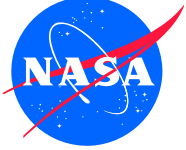
## Legal Authority To Establish Agreements

- **Economy Act (1932)**
  - Agreements with Federal Agencies
- **Space Act (1958)**
  - Agreements with Commercial Entities
  - and Agreements with Federal Agencies
- **Commercial Space Launch Act (1984)**
  - Agreements with Private/Commercial Launch Enterprises
- **Commercial Space Competitiveness Act (2000)**
  - for Commercial Space Entities (- not yet used by NASA)



## Types of Real Property Agreements:

- **Enhanced-Use Lease (EUL)**
- **Use Permit**
- **Commercial Space Launch Act (CSLA) Agreement**
  - *Allows favorable pricing (direct cost only) for Companies engaged in Space Launch and Landing activities*
- **Reimbursable Space Act Agreement (RSAA)**
  - *Used for demand services including utilities and commodities*



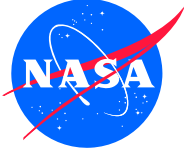
# Primary Guidance for NASA's Agreements

## - NASA Procedural Requirement NPR 9090.1A

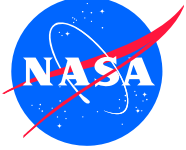
### Covers:

- Administrative Procedures
- Determining Full Cost
- Pricing Reimbursable Agreements
- Enhanced Use Leasing of Real Property





# TYPES OF AGREEMENTS



## ECONOMY ACT - 31 USC § 1535 (1932)

*“Act provides authorization for Federal agencies to request and perform interagency reimbursable work. Under the Act, such reimbursable work must be in the best interest of the Government, and goods and services are less expensive or more conveniently provided by Federal agencies than by commercial vendors.”*

- **Application:**

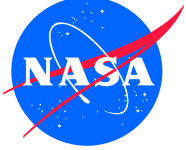
- Applies only to agreements between Federal Agencies

- **Features:**

- Requires pricing at recovery of “actual costs” (full costs)
- Pricing can be rate-based or cost-based..

- **Examples:**

- NOAA Observation Satellites - Interagency Agreement
- Lease of KSC office space by FAA for space launch licensing

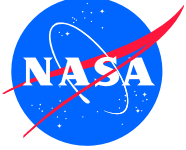


## **NATIONAL AERONAUTICS AND SPACE ACT ("The Space Act") – 51 USC § 20101 (1958)**

*"The Space Act authorizes NASA "to enter into and perform such contracts, leases, cooperative agreements, or other transactions as may be necessary in the conduct of its work and on such terms as it may deem appropriate, with any agency or instrumentality of the United States, or with any State, Territory, or possession, or with any political subdivision thereof, or with any person, firm, association, corporation, or educational institution."*

- **Application:**

- Agreements w/ Commercial Customers & Federal Agencies
- Authorizes NASA to enter into agreements as may be necessary in the conduct of its work..
- Primary Authority for NASA reimbursable business



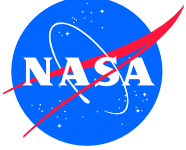
## The SPACE ACT (continued..)

- **Features:**

- Allows wide range of Uses and Agreement Topics
- Pricing is “full cost” but may be adjusted in conjunction with direct benefit to NASA - - documentation is required

- **Examples:**

- Use of KSC facilities for Commercial Space enterprise
- Testing of Race Cars on Shuttle Landing Facility (SLF)
- Agreements with Mercedes Benz & Honda for automobile demonstration & testing
- Use of SLF Hangar by Fish & Wildlife Service helicopter



## **COMMERCIAL SPACE LAUNCH ACT (CSLA)** **– 51 USC § 50901 (1984)**

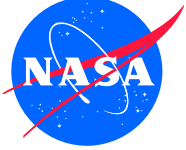
*“Governs the sale, by NASA, of launch and reentry property for fair market value and the sale of launch and reentry services for direct cost only. The charge for launch services or reentry services is an amount equal to the direct costs, including the basic pay of Government civilian and contractor personnel, the Government incurred because of acquisition of the services.”*

- **Application:**

- Agreements with the Commercial Space Launch Industry
- CSLA was established to provide commercial space companies with incentives to grow the U.S. space launch industry

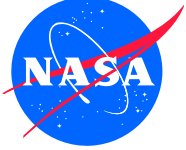
- **Features:**

- Private Sector bears reasonable portion of investment risk & responsibility



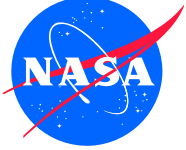
## CSLA (continued...)

- **Features (cont.):**
  - Calls for Pricing based on 'Direct Cost' (-see next slide)
  - Price adjustments under CSLA authority require the concurrence of the cognizant Program Manager and approval of the Center CFO
- **Examples:**
  - NASA has Agency-wide CSLA Agreements with Boeing, Lockheed, Space-X and Orbital Sciences for development and testing of new vehicles and space launch systems



- **“Direct Cost” – as defined by CSLA..**

- Cost must be directly associated with agreement’s commercial launch effort.
- NASA would not have otherwise incurred these costs.. (except Civil Service labor)
- Civil service salary and fringe benefits are allowed if directly applicable to effort (Management oversight cost are not allowed)
- “Pooled” costs are not allowed, however...
- Contractor G&A costs may be allowed since NASA would not otherwise have incurred these costs..

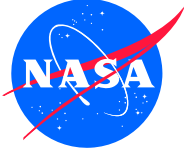


## **COMMERCIAL SPACE COMPETITIVENESS ACT - (CSCA) – 51 USC § 50504 (2000)**

*Authorizes NASA to allow commercial entities to use its facilities on a reimbursable basis – if used to support space-related effort, and equivalent commercial services are not reasonably available. Provides broad authority.*

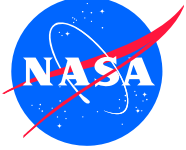
- **Application:**
  - Space-related agreements with non-Federal entities
- **Features:**
  - Direct cost only may be charged – full cost is allowed
- **Examples:**
  - No agreements under CSCA authority have yet been written by NASA. (Special permission needed.)





## Summary of Legal Authorities:

REIMBURSABLE CUSTOMER	AGREEMENT	PRICING
Federal Government	Economy Act	Actual Full Cost
Federal Government Non-federal Government Private entities	Space Act	<ul style="list-style-type: none"> <li>• Cost-Based</li> <li>• Market-Based</li> <li>• Fair and Reasonable (at less than full cost)</li> </ul>
Private Sector	Commercial Space Launch Act (CSLA)	Direct Cost
Non-Federal	Commercial Space Competitiveness Act (CSCA)	Direct or Full Cost



## **OTHER AGREEMENT TYPES:**

- **Enhanced Use Leases**

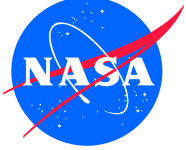
- Examples: Land for Solar Farm, Cell Towers, and Press Sites for CBS, NBC, etc., possible office space leases, Exploration Park..
- Allows NASA to retain profits

- **Use Permits**

- Can be used with any Real Property

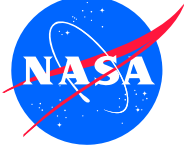
- **Memorandum of Agreement (MOA) & Memorandum of Understanding (MOU)**

- Mostly with other Agencies – usually no cost



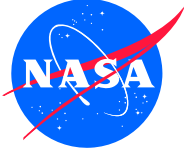
## Current / Emerging Partnership Highlights

- **Currently 60+ Partnerships existing or in works.**
- **10 Requests for Information (RFI's) to Industry:**
  - Including:*
    - Shuttle Landing Facility (SLF),
    - Vehicle Assembly Building (VAB),
    - Launch Pad 39A
    - Orbiter Processing Facilities (OPF's)
    - Hypergol Maintenance Facility (HMF)
    - Thermal Protection System Facility (TPSF/Tile Shop)
- **Commercial launch/space services industry**
  - COTS, CRS and Commercial Crew including CCoCAP
    - SpaceX, Orbital, Boeing, Sierra Nevada
  - Bigelow Aerospace, Andrews (Space Services), ProXopS Inc.

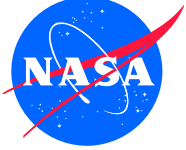


## **New & emerging space transportation and test programs**

- Suborbital Vehicles (e.g. XCOR, Virgin Galactic, Masten)
- USAF X-37
- USAF Reusable Booster System (RBS) programs
- Dynetics
- Sikorsky Helicopters
- BRS Aerospace

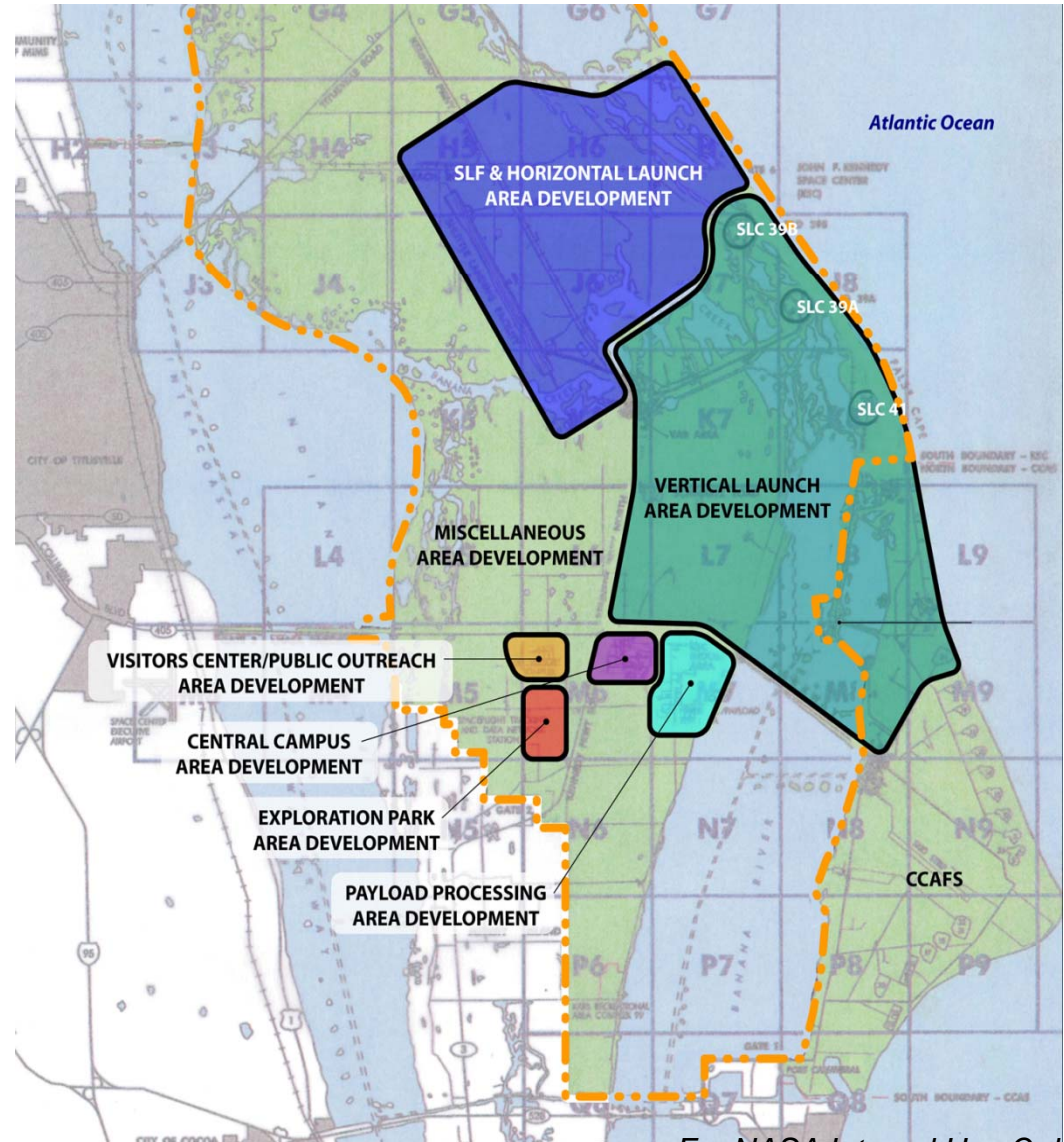


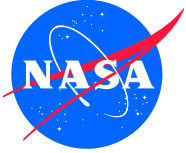
# Examples of KSC Commercial Leasing



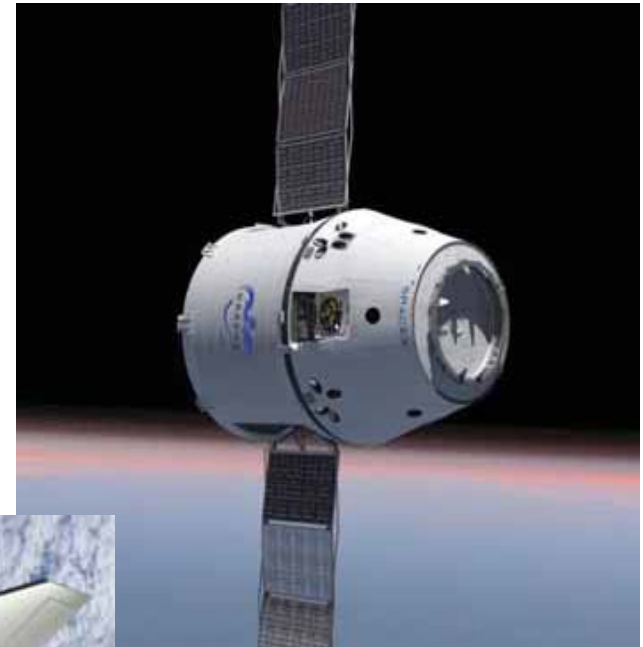
# KSC Master Planning Area Development

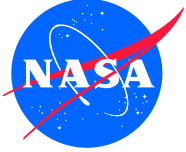
- **Development Areas**
  - SLF & Horizontal Launch/Recovery
  - Vertical Launch/Recovery
  - Payload Processing
  - Industrial Area (Central Campus)
  - Public Outreach
  - Exploration Park
  - Misc. Resources (e.g. disturbed agricultural land)





## CCiCAP





## **XCOR**

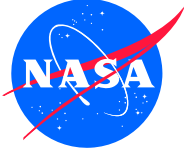


**Example:**

- **EUL @ SLF**

**(Approximately  
150 employees)**

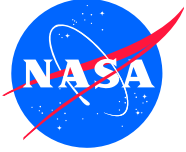




## Launch Complex 39A & 39B



- **LC 39A – Commercial Customers**
- **CSLA Agreement**
- **Customer performs all O & M and pays all utilities & commodities**
- **LC39B – NASA SLS and Commercial**

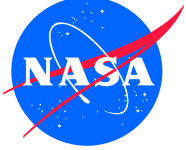


## **OPF 1 & 2**



- **Use Permit**

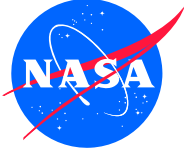
**(Approximately  
75 employees)**



## **OPF 3 (&PCC)**



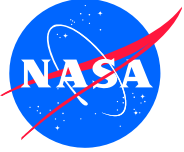
- **Use Permit with Space Florida (SF)**
- **OPF#3**
- **Processing Control Center (PCC)**
- **15 year permit**
- **SF pays all Ops./Maint. Costs and utilities**
- **Annual Contribution of \$100K to Center Mgmt. & Operations Budget**



## Vehicle Assembly Building (VAB)



- **Vehicle Processing**
- **4 High Bays**
- **456 ft. doors**
- **Transfer Aisle**
- **Processing Platforms**
- **5 Cranes**
- **343,500 s.f.**

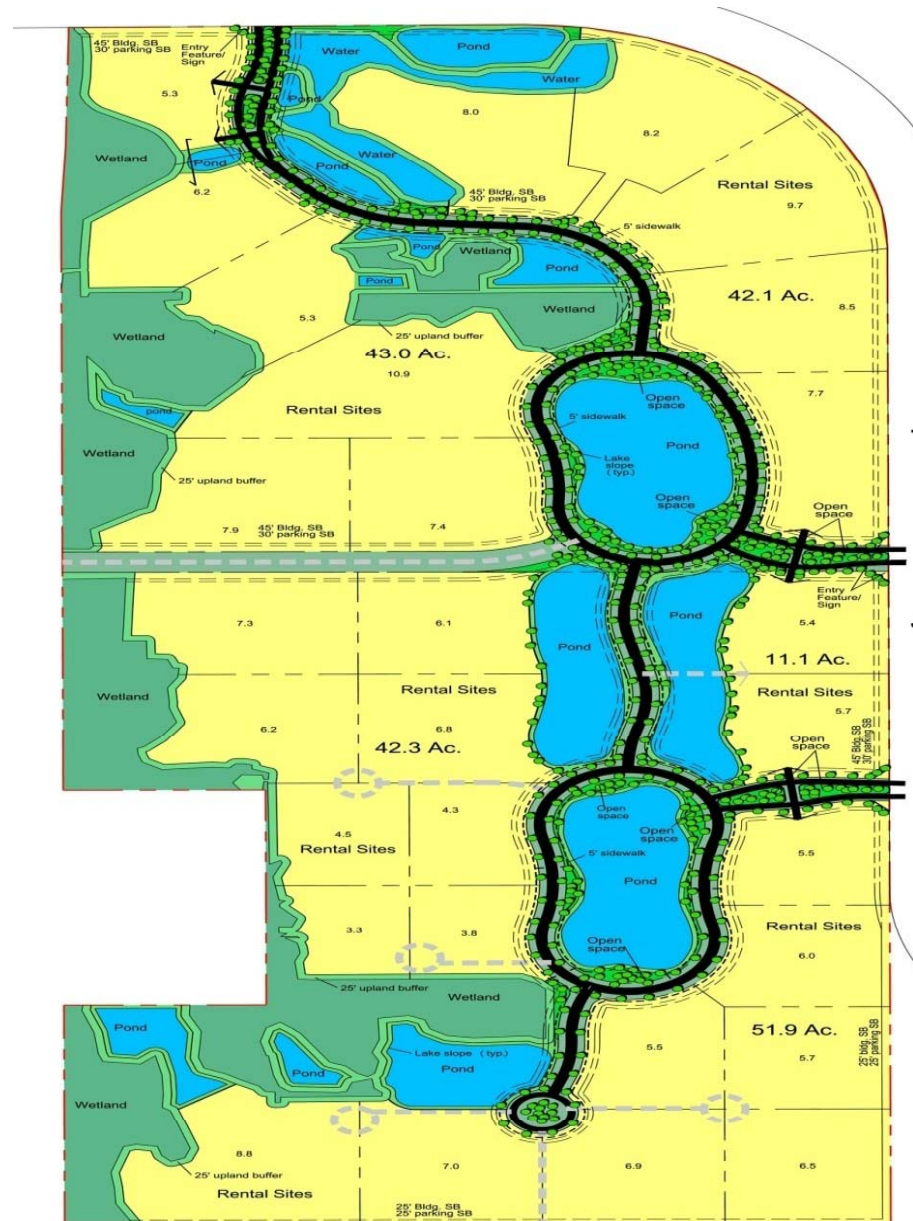


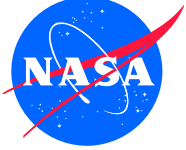
## KSC Land

Currently valued at  
~ \$60,000 per acre.

Primary leasing:

- Media/press sites
- Cell tower locations
- FPL solar arrays

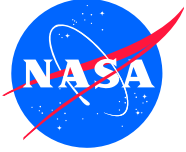




## KSC Photovoltaic Facility



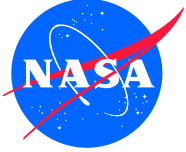
- In-kind EUL
- Florida Power & Light
- 60 acres of land
- 10 megawatt system
- KSC received a 1 megawatt system
- Valued @ \$6.36m and annual O & M for 30 years
- Produces 1% of KSC electricity



## Cell Towers



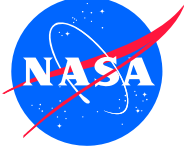
- **AT&T**
- **Verizon**
- **American Tower**
- **Bell South**
  
- **Aprox. \$15k annually  
for each tower**



Development recently began on **Exploration Park**, a 'research/business park' adjacent to Kennedy Space Center, with laboratory and office space available for lease to commercial companies interested in having a business presence and/or other operations near KSC.







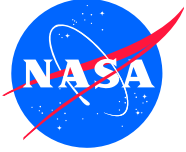
## Providing Personal Property

**NASA has personal property that space industry companies can use for their commercial operations, both government and private customers, examples below:**

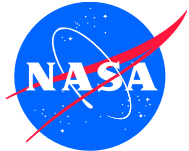
- 220 items in OPF3
- 1600 items in the NSLD

### **Background:**

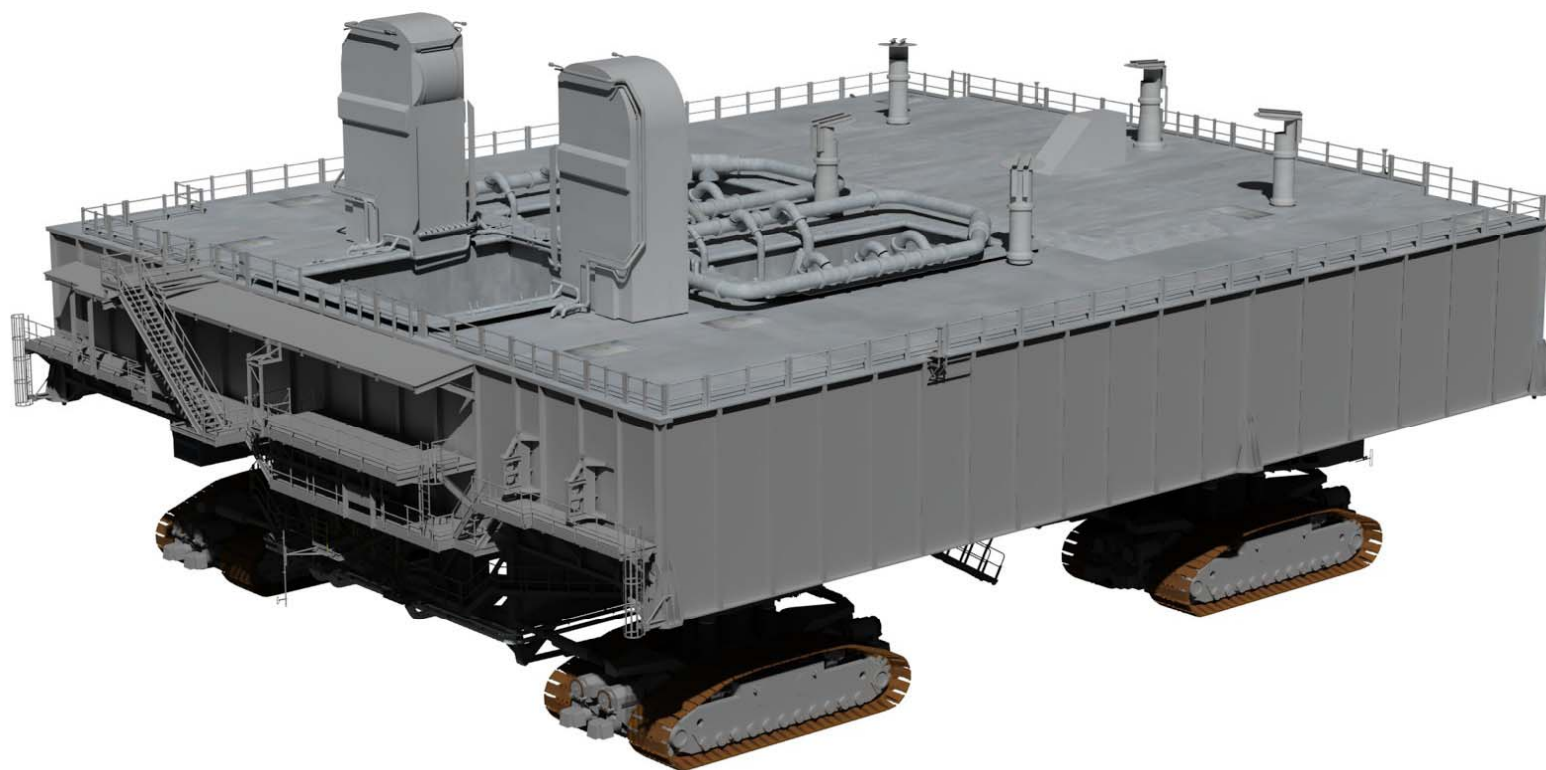
- **NASA has no current need for the property, but may need it in the future**
- **NASA has no funds to maintain this property**
- **KSC proposes to provide such property to space industry companies if the company agrees to maintain the property at its expense and return it to NASA on request**
- **The alternative is to permanently dispose of the property as excess/surplus losing the property and the skilled workforce that uses the property**



# Examples of KSC Personal Property



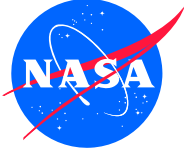
# Crawler-Transporter





# MLPs





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