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Fiscal Year 2005 NASA - Wide Facilities Condition Assessment and Deferred Maintenance Estimate

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Fiscal Year 2005 (FY05) is the fourth assessment of the condition of all National Aeronautics and Space Administration (NASA) facilities and estimate of the associated deferred maintenance (DM) cost.

The DM methodology is designed to provide consistent, auditable deferred maintenance estimates at the Agency and Center levels, and to provide an assessment of the condition of NASA facilities at the system level. The DM methodology is a parametric model, which is populated with data from condition assessors who have conducted a rapid visual assessment of the facilities and their systems. NASA uses it as a facility performance metric that NASA can compare to and trend against other commonly used facility metrics. As NASA conducts follow-on assessments, trends will develop that will prove useful in evaluating the overall effectiveness of the facility maintenance programs within NASA. The NASA Facility Engineering and Real Property Division and the NASA Comptroller have used the results as the basis for the annual Agency Performance and Accountability Report, and it is an integral part of meeting the requirements of the President’s Management Agenda. It is also a valuable investment and budgeting tool as it enables NASA to efficiently analyze the condition of its facilities and the cost to renew them.

The results and conclusions of the FY05 assessment follow:

- The continued improvement of data within the Real Property Inventory (RPI) enhances the accuracy of the analysis.
- The FY05 Facility Condition Index (FCI) for both NASA’s “total” and “active” facilities remained constant from the FY04 report at 3.7. This rating indicates that NASA’s facilities are in fair condition, which is defined as “*occasionally are unable to function as intended.*” The critical facilities (scientific and operations) are generally in better condition than the other facilities, however, these ratings are too low for critical facilities because the potential exists that missions and programs may be impacted. The FCI for inactive facilities is 3.4, down from 3.5 in FY04.
- NASA’s deferred maintenance estimate for all facilities increased from \$1.77 billion in FY04 to \$1.9 billion in 2005, an increase of 7%. This increase is even more significant considering the influx of repair/renewal funds associated with the Return to Flight program and hurricane damage repairs. The DM estimate for inactive facilities is \$450 million, an increase of \$40 million over the FY04 estimate.
- The FY07 Facilities Sustainment Model (FSM) ran in conjunction with the FY05 DM model is based on an analysis of NASA facilities utilizing the Department of Defense (DoD) version 6 FSM to ascertain a level of funding required to prevent additional deterioration and deferred maintenance. The level required for FY07 is \$398 million compared with \$360 million for FY06.
- For NASA to attain its stated average facility FCI goal of 4.3 for all facilities, it would require an additional capital investment of approximately \$914 million in today's dollars. For active facilities NASA would require \$635 million.

- This needed additional investment would be over and above the presently planned capital funding for renewal and the planned annual sustainment funding for maintenance and repair.
 - Additionally, possible significant declines in presently planned capital renewal and annual sustainment funding that are being discussed In NASA would cause the \$914 million to fall short in achieving the FCI goal of 4.3 in the future.
- There has not been a noticeable change in NASA’s overall facility condition since the FY02 assessment. NASA is only able to maintain this condition by having an world-class, highly efficient maintenance program, and through unprogrammed supplemental maintenance and repair funding from programmatic sources and from funds in support of natural disasters. It should not be anticipated that the Agency’s present level of maintenance funding combined with its existing Construction of Facilities (CoF) capital renewal program will result in any improvement in facilities conditions or reductions in the DM estimate.
 - At current funding levels, only through a reduction of inventory will there be a significant reduction in future deferred maintenance levels. However, it must be noted that assessment teams observed that the improper mothballing of facilities causes more damage than the money saved by closing the facility.
 - NASA’s aggressive demolition program, 117 facilities, accounted for a DM reduction of \$17 million in deferred maintenance led by Kennedy Space Center, Langley Research Center, and Marshall Space Flight Center. Although this is not the nearly the \$64 million reduction in FY04, NASA should continue to encourage and centrally fund an aggressive demolition program, and continue the consolidation of workspaces that frees unneeded or underutilized facilities, allowing limited repair and maintenance funds to be concentrated on fewer facilities.

The following tables provide summary data on the DM cost, FCI by Center (numbers include all sites), Directorate, and Agency FY05 CRV values. Because of NASA’s reorganization, the Directorates were not compared to last year’s Enterprise statistics. Table 0-1 provides a summary of the data. Table 0-2 provides a comparison between the FY 05 and FY04 assessments. The “Total” line in all tables throughout the paper includes all component installations of the Centers.

Table 0-1 FY05 Summary Table (\$B)

Line Name	FY05 CRV Total (\$B)	FY05 DM Total (\$B)	FCI	Active CRV (\$B)	Active DM (\$B)	Active FCI	Inactive CRV (\$B)	Inactive DM (\$B)	Inactive FCI
NASA TOTAL	\$24.48	\$1.90	3.7	\$21.74	\$1.45	3.7	\$2.75	\$0.45	3.4
Space Operations Directorate	\$11.29	\$1.06	3.5	\$10.77	\$0.96	3.6	\$0.53	\$0.10	3.0
Johnson Space Center Total	\$2.00	\$0.11	3.7	\$2.00	\$0.11	3.7	\$0.00	\$0.00	2.1
Kennedy Space Center Total	\$4.56	\$0.51	3.4	\$4.49	\$0.50	3.4	\$0.07	\$0.01	3.1
Marshall Space Center Total	\$2.82	\$0.25	3.6	\$2.54	\$0.19	3.7	\$0.28	\$0.06	3.1
Stennis Space Center Total	\$1.91	\$0.19	3.4	\$1.74	\$0.16	3.5	\$0.17	\$0.03	2.9
Science Directorate	\$7.12	\$0.40	3.9	\$5.34	\$0.22	4.0	\$1.78	\$0.19	3.6
Ames Research Center Total	\$4.03	\$0.27	3.8	\$2.33	\$0.11	3.9	\$1.70	\$0.17	3.6
Goddard Space Flight Center Total	\$1.76	\$0.06	4.1	\$1.72	\$0.05	4.2	\$0.04	\$0.01	3.3
Jet Propulsion Laboratory Total	\$1.33	\$0.07	4.0	\$1.29	\$0.06	4.0	\$0.05	\$0.01	3.7
Aeronautics Research Directorate	\$6.07	\$0.43	3.7	\$5.63	\$0.28	3.8	\$0.44	\$0.16	2.9
Dryden Flight Research Center Total	\$0.31	\$0.01	4.2	\$0.31	\$0.01	4.2	\$0.00	\$0.00	3.4

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Glenn Research Center Total	\$2.83	\$0.25	3.7	\$2.61	\$0.13	3.8	\$0.22	\$0.12	2.5
Langley Research Center	\$2.93	\$0.18	3.7	\$2.72	\$0.14	3.7	\$0.22	\$0.04	3.2

Table 0-2 FY04 to FY05 Comparison*

Line Name	FY04 DM (\$M)	FY05 DM (\$M)	Delta DM (\$M)	% Change	FY04 FCI	FY05 FCI	Delta FCI
NASA Total	\$1,773	\$1,900	\$127	7%	3.7	3.7	0.0
Space Operations Directorate		\$1,063					
Johnson Space Center Total	\$132	\$114	(\$18)	-14%	3.6	3.7	0.1
Kennedy Space Center Total	\$551	\$509	(\$42)	-8%	3.4	3.4	0.0
Marshall Space Flight Center Total	\$213	\$246	\$33	16%	3.6	3.6	0.0
Stennis Space Center Total	\$129	\$195	\$66	51%	3.6	3.4	-0.2
Science Directorate		\$403					
Ames Research Center Total	\$264	\$272	\$8	3%	3.8	3.8	0.0
Goddard Space Flight Center Total	\$52	\$63	\$11	21%	4.2	4.1	-0.1
Jet Propulsion Laboratory Total	\$68	\$68	\$0	1%	4.0	4.0	0.0
Aeronautics Research Directorate		\$434					
Dryden Flight Research Center Total	\$7	\$8	\$1	13%	4.2	4.2	0.0
Glenn Research Center Total	\$237	\$250	\$13	6%	3.7	3.7	0.0
Langley Research Center Total	\$121	\$176	\$55	45%	3.8	3.7	-0.1

*Because of NASA’s organizational restructuring a comparison for the Directorates is not possible.

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ACRONYMS

ADA	Americans with Disabilities Act
ARC	Ames Research Center
ASTM	American Society for Testing of Materials
ATK	Alliant Techsystems (Brigham City, Utah)
BMAR	Backlog of Maintenance and Repair
CAS	Condition Assessment System
CDSCC	Canberra Deep Space Communications Complex
CER	Cost Estimating Relationships
COD	Center Operations Directorate
CRV	Current Replacement Value
DFRC	Dryden Flight Research Center
DM	Deferred Maintenance
DoD	Department of Defense
DOE	Department of Energy
DSN	Deep Space Network
ENR	Engineering News Record
FASAB	Federal Accounting Standards Advisory Board
FCI	Facility Condition Index
FFC	Federal Facilities Council
FIS	Facility Investment Study
FSM	Facility Sustainment Model
FY	Fiscal Year
GRC	Glenn Research Center
GSFC	Goddard Space Flight Center
GTE	Greater Than or Equal To
HSTDN	Hawaii Space Flight Tracking and Data Network
HVAC	Heating, Ventilation, and Air Conditioning Systems
JPL	Jet Propulsion Laboratory
JSC	Johnson Space Center
KPGO	Kokee Park Geophysical Observatory
KSC	Kennedy Space Center
LaRC	Langley Research Center
MAF	Michoud Assembly Facility
MFA	Moffet Federal Airfield
MDSCC	Madrid Deep Space Communications Complex
MSFC	Marshall Space Flight Center
NASA	National Aeronautics and Space Administration
NPR	NASA Policy Requirements
NSBF	National Scientific Balloon Facility
O&M	Operations and Maintenance
OSF	Office of Space Flight
PACES	Parametric Cost Estimating System
PBS	Plum Brook Station

PDA	Personal Digital Assistant
PFR	Poker Flat Research Range
PM	Preventive Maintenance
POC	Point of Contact
PP&E	Plant, Property, and Equipment
PSTDN	Ponce De Leon Space Flight Tracking and Data Network
R&D	Research and Development
RPI	Real Property Inventory
SCI	System Condition Index
SCTF	Sonny Carter Training Facility
SOW	Statement of Work
SSC	Stennis Space Center
SSFL	Santa Susanna Field Laboratory
STDN	Space Flight Tracking and Data Network
TDRSS	Tracking and Data Relay Satellite System
UM	Unit of Measure
USACE	U.S. Army Corps of Engineers
VAB	Vehicle Assembly Building
WFF	Wallops Flight Facility
WSTF	White Sands Testing Facility

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1.1 Purpose

This report provides the results of the Fiscal Year 2005 (FY05) National Aeronautics and Space Administration (NASA) facilities condition assessment and deferred maintenance cost estimate using the NASA DM parametric estimating method. The DM method enables a rapid, low-cost, consistent assessment of the condition of NASA’s facilities worldwide. It is designed for application to a large population of facilities.

The facility assessment results provide a facilities condition assessment that satisfies the Federal Accounting Standards Advisory Board (FASAB) Standard #6.¹ The assessment results also satisfy NASA’s requirement to report on facilities condition in the Agency’s annual Performance and Accountability Report. The Facilities Engineering and Real Property Division and the Comptroller can utilize the deferred maintenance cost estimate to provide a useful metric of facilities requirements during the budget evaluation process.

1.2 Background

FASAB Standard #6 requires federal agencies to report on facilities condition and the estimated cost to remedy deferred maintenance of plant, property, and equipment (PP&E) in their Annual Accountability Reports. To meet this requirement NASA Policy Requirements (NPR) 8831.2D, *Facilities Maintenance Management*, requires periodic condition assessments of Center facilities by completing a 100% inspection or by routine inspections scheduled throughout the prescribed 5-year cycle. Centers previously reported the results of these condition assessments as the backlog of maintenance and repair (BMAR). NPR 8831.2D defines BMAR as:

The NASA unfunded facilities maintenance required to bring facilities and collateral equipment to a condition that meets acceptable facilities maintenance standards.

Within NASA, BMAR estimates historically had been used as a vehicle to support the Agency’s Annual Accountability Report, by providing both a functional performance metric trended over time and a reference point when reviewing annual maintenance budgets.

In 1997, NASA developed an Agency-wide deferred maintenance estimate, the Facility Investment Study (FIS). The FIS estimated both BMAR and alteration requirements. From 1997 through 2001, NASA updated the FIS to form the basis for the Agency’s facilities condition estimate referenced in the Annual Accountability Reports. Auditors of the FY01 Accountability Report indicated that a new, more consistent method for estimating deferred maintenance was required for the FY02 Accountability Report.

¹ Federal Accounting Standards Advisory Board. *Deferred Maintenance Reporting For Federal Facilities, Meeting the Requirements of Federal Accounting Standards Advisory Board Standard Number 6, as Amended, Accounting for Property, Plant and Equipment (PP&E)*, June 1996. GPO #041-001-00462-9.

Due to a broad interest in FASAB Standard #6, the Federal Facilities Council (FFC) Standing Committee on Operations and Maintenance initiated a study to identify issues related to the reporting of DM for facilities. This report is entitled, *Deferred Maintenance Reporting for Federal Facilities: Meeting the Requirements of Federal Accounting Standards Advisory Board Standard Number 6, as Amended*. The study reviewed alternative options, including parametric estimations, for developing credible, consistent, auditable, and cost effective DM estimates.²

Concurrent with the FFC study, NASA leadership supported a parametric cost estimating system as a cost-effective and credible alternative for estimating DM. Parametric cost estimating is an accepted technique used by contractors and the government in planning, budgeting, and performance stages of the acquisition process. The technique expedites the development of cost estimates and is appropriate when discrete estimating techniques would require inordinate amounts of time and resources, without leading to significant improvements in estimate accuracy or probability of obtaining additional resources.

The facilities condition assessment involves an independent rapid visual assessment of nine different systems within each facility.³ Independent assessment teams rely upon input from local facilities management staff during the assessment. Systems are rated from 5 (normal maintenance required) to 1 (system does not function). These condition ratings are entered into a parametric estimating model that uses the current replacement value (CRV) as its basis. The CRV is apportioned among each of the nine facility systems. There are different System CRV Percentage models for each of 42 separate DM facility categories. The DM model produces a system condition index (SCI), a facilities condition index (FCI), and a deferred maintenance cost estimate (DM cost). Appendix A provides a detailed explanation of the process.

In FY02, NASA first used the DM method for assessing the condition and estimating the deferred maintenance cost on their facilities. The NASA Facility Engineering and Real Property Division and the NASA Comptroller used the results as the basis for the Annual Accountability Report and as a budgeting tool. The results of the FY02 report follow:

- The Agency FCI was 3.6 on a scale from 5 (excellent) to 1 (bad)
- NASA’s scientific (R&D type) facilities had an FCI of 3.7
- Operations facilities (mission and communications) had an FCI of 3.8
- The FCI of inactive facilities including remote and low value sites was 2.5
- The Agency-wide FY02 DM estimate was approximately \$2.0 billion, which was 10% of NASA’s \$21 billion CRV
- The DM estimate for active sites was about \$1.6 billion and the DM estimate on inactive facilities was approximately \$0.4 billion

² The FFC report can be viewed online at <http://books.nap.edu/catalog/10095.html>.

³ Structure, Roof, Exterior, Interior Finishes, Heating/Ventilating/Air Conditioning (HVAC), Electrical Systems, Plumbing Systems, Conveyance Systems, Program Support Equipment



2.1 The Assessment

To complete the assessments by the target date of September 1, 2005, 20 engineers and technicians were assigned to conduct the site visits. In total, the assessment teams evaluated the condition of 5,300 facilities. Thirty-four sites were visited, with 5,268 facilities visually assessed. Twenty-seven additional sites (15 of which are abandoned), containing 32 facilities, were assessed remotely using techniques described in the *Deferred Maintenance Guide version 4*. These sites, except Morocco, have minimal facilities that usually consist of a very small, “temporary” facility (or trailer) and a concrete pad. Morocco has three larger, permanent buildings and it is currently in an inactive status. The facilities at the site are in good to excellent condition. The Downey, California, Bermuda, and Gambia facilities were not assessed because NASA is still in the process of returning them to the city of Downey and the governments of Bermuda and Gambia, respectively. Appendix B provides a list of low value, remote sites that were assessed but not visited.

Multiple two-person teams conducted the site visits. The project manager established the number of teams to complete each site assessment within one week. Teams then collected assessment data on handheld personal digital assistants (PDA) (e.g., PalmPilots® and Microsoft Windows® CE-based handheld computers). In some cases, assessors used paper records as a backup. NASA facility staff, security staff, and supporting contractors provided outstanding support and contributed to the successful completion of the assessments.

DM assessments do not include costs associated with environmental contamination/remediation, such as asbestos removal, lead paint removal, Americans with Disabilities Act (ADA) considerations, or changed safety regulations and codes.

2.1.1 Sites Not Visited but Assessed

In addition to the Centers, NASA also owns 27 small, remote, and low value sites worldwide. An examination of the property cards in the RPI for each facility found that only 12 of these smaller sites are active. Of those 12, four are overseas in very remote locations and have a value of less than \$20,000; the RPI describes one of those four sites as a temporary facility on the property card. The other eight active sites have value that is more significant. The remaining fifteen inactive sites are located both in the continental United States and overseas. Because of the high cost to visit remote sites, which are typically of low value, it was determined that it was not cost efficient to send an assessment team to all remote and low value sites, but to assess them remotely. The assessment of these sites is completed by using a combination of the techniques found in the *Deferred Maintenance Guidebook version 2*. Their total deferred maintenance value is \$1.58 million or 0.09% of the NASA deferred maintenance total. Their FCI is 3.3.

2.1.2 GPS Data Collection

During this years assessment we were able to get the positions of all the facilities at the Madrid Deep Space Communications Complex using Global Positioning System (GPS) equipment with Wide Area Augmentation System (WAAS) (Garmin model GPS 76) (map datum = WGS 84/Geoid 99) with an accuracy level of between 8-30 feet this year. All facilities now have location data.

2.1.3 Facilities with CRVs over \$100M

As recommended in last year's report, two separate teams assessed the facilities with a CRV of over \$100 million. The 34 facilities in Table 2-5 account for \$7.1 billion in CRV, which equals 29% of the NASA CRV. Their DM estimate is \$722 million or 41% of the NASA DM estimate. This compares to FY04's \$6.3 billion in CRV, which equaled 28% of the NASA CRV. The FY04 DM estimate was \$529.2 million or 33% of the NASA DM estimate.

Table 2-1 Facilities with CRV over \$100M

Name	Facility	Description	CRV (\$M)	FCI	DM (\$M)
Ames Research Center	N206	12 FT PRESSURE WIND TUN.	\$178.67	4.5	\$1.89
Ames Research Center	N218	14 FT.TRANSONIC WIND TUNNEL LAB.	\$228.40	2.9	\$57.40
Ames Research Center	N221	40X80 WIND TUNNEL	\$269.67	3.8	\$9.06
Ames Research Center	N221B	80X120 FT.SUBSONIC WT.	\$154.44	3.8	\$5.36
Ames Research Center	N227	UNITARY PLAN WT.BUILDING	\$161.29	3.8	\$5.89
Ames Research Center	N227A	11 FT.TRANSONIC WT	\$100.02	4.8	\$0.51
Ames Research Center	N229	EXPER.FLUID DYNAMICS FAC.	\$125.44	3.7	\$5.98
Moffet Federal Airfield	001	HANGAR ONE	\$148.96	3.1	\$18.66
Moffet Federal Airfield	047	AIRCRAFT MAINTENANCE HANGAR 3	\$114.90	3.0	\$14.90
Moffet Federal Airfield	MF1002	AIRCRAFT PARKING APRON	\$157.76	4.0	\$1.58
Glenn Research Center	0005	ENGINE RESEARCH BUILDING	\$157.61	3.0	\$17.59
Glenn Research Center	0064	CENTRAL AIR EQUIPMENT BUILDING	\$185.29	3.6	\$10.99
Plum Brook Station	1411	SPF TEST BUILDING	\$159.99	3.8	\$8.69
Wallops Flight Facility	S-0003	RUNWAYS - AFLD PAVEMENTS - STAT	\$135.42	5.0	\$0.00
Johnson Space Center	030	MISSION CONTROL CENTER - HOUSTON	\$113.34	3.6	\$6.18
Johnson Space Center	032	SPACE ENVIRONMENT SIMULATION LAB.	\$249.28	3.4	\$22.41
Kennedy Space Center	J7-0337	LAUNCH PAD 39B	\$293.16	4.0	\$5.16
Kennedy Space Center	J8-1708	LAUNCH PAD 39A	\$338.66	3.3	\$27.50
Kennedy Space Center	K6-0848	VEHICLE ASSEMBLY BUILDING	\$985.41	2.8	\$273.35
Kennedy Space Center	M7-0355	OPERATIONS & CHECKOUT BUILDING	\$280.29	3.4	\$23.66
Kennedy Space Center	UK-004	BITUMINOUS ROADS	\$126.60	3.0	\$12.66
Kennedy Space Center	UK-005	COMMUNICATIONS SYSTEM	\$156.34	4.0	\$2.47
Langley Research Center	1146	16' TRANSONIC TUN (16' TWT)	\$153.34	3.8	\$5.49
Langley Research Center	1236	NATIONAL TRANSONIC FACILITY (NTF)	\$339.84	3.8	\$12.78
Langley Research Center	1247D	AAAC OFFICE & LABS (EAST WING)	\$113.87	3.5	\$8.64
Langley Research Center	1251	UNITARY WIND TUNNEL	\$249.52	3.4	\$20.93
Langley Research Center	1265	8 FOOT HIGH TEMPERATURE TUNNEL	\$146.34	3.8	\$6.32
Langley Research Center	648	TRANSONIC DYNAMICS TUNNEL	\$150.19	3.8	\$6.01
Marshall Space Flight Center	4670	Advanced Engine Test Facility	\$103.23	3.0	\$22.66

Name	Facility	Description	CRV (\$M)	FCI	DM (\$M)
Michoud Assembly Facility	103	MANUFACTURING BLDG	\$373.40	3.5	\$24.91
Stennis Space Center	4120	TEST STAND A-1	\$140.83	2.9	\$20.65
Stennis Space Center	4122	TEST STAND A-2	\$155.57	3.0	\$20.43
Stennis Space Center	4220	TEST STAND B-1	\$203.03	3.0	\$25.46
Stennis Space Center	4221	TEST STAND B-2	\$125.46	3.0	\$16.25
Facilities with CRV gte \$100M		Total	\$7,075.58		\$722.41

2.1.4 Facilities Not Accessible but Assessed

Access was denied for only a very few facilities, but they were still assessed.

- One building at White Sands, which is now leased to the United States Air Force (USAF), is classified. It was assessed using anecdotal information from the escorts.
- A few buildings associated with Building #35 at Glenn Research Center (GRC) were not accessible due to testing. All of these facilities were assessed using anecdotal information from the escorts and the facilities managers.
- The roof of Hangar 1 at Moffett Field has been determined to contain Polychlorinated Biphenyls (PCB), which has resulted in the hangar being closed for normal operations. The entire hangar and immediately surrounding area has been closed and no access to the hangar is allowed. The assessment for Hangar 1 was performed based on discussions with NASA personnel. The CRV of \$149 million for Hangar 1 normally requires assessment by two separate assessment teams. However, since the assessment of Hanger 1 was performed based on a report by the pertinent NASA individuals, only one assessment is being reported since both teams were given the same data.
- At Plum Brook Station, twelve buildings remain in the “Reactor” area, which continue to be in the process of being decommissioned. These items are contained within a fence and could not be accessed, but the roofs and exteriors could be viewed with a remote camera system. The condition of these buildings was primarily as reported by the decommissioning manager.

2.1.5 Facilities with a Book Value of \$5,000 or Less

According to NPR 8800.15A, *Real Estate Management Program Implementation Manual*, Centers are not required to list facilities with a *book value* of \$5,000 or less in their RPI. This creates some confusion during the assessments because the statement of work requires the assessors to “perform walk-through condition assessments of all NASA facilities.” Consequently, 474 facilities with an initial book value of under \$5,000 were assessed. 460 of the facilities are on the RPI and have a CRV of \$7.7 million. Fourteen of the facilities are not on the RPI, and have a CRV of \$88,755.

To account for the 14 facilities not in the FY05 RPI, another flag field was created in the DM database similar to the active/inactive field or the program field. This gives NASA the flexibility to include these items in the DM estimate or exclude them if desired. Appendix C provides a list of these facilities.

2.1.6 Facility CRVs That Were Estimated for the Assessment

The FY05 report CRV is \$24.4 billion. It differs from the commonly used NASA CRV because it includes facilities that are not required to be recorded in the RPI per NPR 8800.15A, and facilities that the assessors found but were not listed in the RPI. Usually, these are facilities that

are new and do not have a complete record in the RPI; or they were facilities that had a value of less than \$5,000 for which the RPI does not generate a CRV. For the FY05 assessment, the team estimated an additional \$29.7 million worth of CRV for 225 facilities that were not in the RPI. This estimation compares to the FY04 generated CRV value of \$46.2 million for 225 facilities indicating that NASA RPI records are improving in this area.⁴

When facility book values are missing from the RPI, CRVs are estimated in two ways. The preferred method is to use an average cost per unit of measure based on the DM facility category. The database quality control manager uses this method when they know the facility quantity (size/ capacity). A second method is used when the facility unit of measure is unknown and usually the facility category is unknown. First, the database quality control manager assigns a DM category, and he then generates an average facility cost by DM facility category. The manager then adds these assumed values to the total NASA CRV to create the CRV for the facilities assessment and the DM cost estimate. After these approximations are complete, a team of engineers reviews them for correctness and adjusts them as necessary to create realistic values. Appendix D provides a list of these facilities and their estimated CRVs.

2.1.7 Assessment of In/Out Grants

All in/out grant facilities are assessed for this report. The rationale is that even though someone else may currently have an agreement to maintain the building, NASA owns the building, and upon the conclusion of the grant, the facility would revert to NASA. Therefore, NASA must account for the condition of this facility. Facilities, such as the Goddard Institute of Space Studies, that NASA leases but does not maintain were not assessed.

2.3.6.1 Hangar # 1623 at Dryden is listed in the RPI but it actually belongs to the “site alliance” and not to NASA. NASA used the hangar in the past and has performed maintenance on the hangar. However, since NASA has been informed that the alliance would like them to vacate the hangar (vacate date not yet determined), NASA will no longer be performing maintenance on the hangar and consideration should be given to treating this hangar as a “leased/out granted” RPI item. Never the less, the item was assessed and included in the DM estimation.

2.1.8 Demolition of Facilities

117 facilities were demolished since the FY04 assessments were completed. Table 2-2 shows the demolition of facilities decreased the DM estimate by almost \$17 million. Since these facilities were demolished, the DM estimate is from FY04 or a preceding year. Appendix E shows a detailed list of demolished facilities.

Table 2-2 Confirmed Demolitions

Name	CRV	Center DM
Ames Research Center	\$407,822	\$115,346
Dryden Flight Research Center	\$853,796	\$35,898
Glenn Research Center	\$4,660,438	\$2,706,206
Langley Research Center	\$8,218,025	\$2,902,080
Jet Propulsion Laboratory	\$21,842	\$59
Johnson Space Center	\$2,656,604	\$996,080
Kennedy Space Center	\$35,054,907	\$9,506,080

⁴ The total number of facilities each year happens to be 225.

Name	CRV	Center DM
Marshall Space Flight Center	\$3,342,704	\$364,185
NASA Total	\$55,216,138	\$16,625,934

2.1.9 Kennedy Space Center

Kennedy Space Center’s DM estimate decreased \$59.74 million or 7.7 % from FY04 (\$532.90 million) to FY05 (\$491.86M). This decrease was primarily due to Vehicle Assembly Building (VAB) (K6-0848), hurricane recovery and Return to Flight capital improvements. The FCI of the VAB went up from a 2.5 in FY04 to 2.8 in FY05. Approximately \$125 million was spent at KSC on hurricane recovery alone, including many roof replacements and interior space repairs. Significant VAB improvements that are currently in progress, including roof, high bay sliding panel doors and exterior panel siding replacements, have included structural repairs, raising the structural rating from 3 to 4. In addition, the assessment team recommended that the interior and plumbing ratings each be increased from 2 to 3 because most of the VAB office spaces have been abandoned (including restrooms) or converted into flight hardware and logistical storage space. This recommendation was in accordance with the *DM Guidebook* that states that interior condition should consider the appropriateness of the interior to the function of the space. In this example, the change of the function of the space was from office space to supply space. The interior condition of a supply space does not require the upkeep required of an office space so the recommendation was valid. However, because the plumbing was not actually upgraded (some of the interior was) and because of the impact of the VAB on the NASA DM estimate, the recommended increase in plumbing system condition was not followed. The plumbing rating remains a 2.

2.2 Assessment Quality Assurance

A concern regarding the application of the DM method is always to control the consistency of assessments among the various teams and team members. To ensure consistency, there were training sessions at three locations - Cocoa Beach, Florida; Houston, Texas; and Alexandria, Virginia. All assessors attended a training session. The training provided a review of the statement of work (SOW), and a detailed brief on the Deferred Maintenance Guidebook with a special emphasis on lessons learned from last year’s assessment.

To ensure that assessments were consistent between years, team leaders were required to validate the FY05 results against the FY04 results at the end of each assessment day. If the ratings difference for a particular system within a facility was more than one, the team leader was to validate the change in the condition of the system.

2.2.1 Consistency Analysis of the FY05 Ratings

A consistency analysis of the 2005 DM data showed that most NASA facilities have not changed in their condition from FY04 to FY05. This is most evident if one looks at the delta in FCI for each individual facility from year to year. Based on a normal distribution analysis, over 5,200 of the 5,300 facilities assessed fall within three standard deviations of the mean of all of the FCI deltas. This means that 99.8 percent of the facilities at NASA changed within +/- 1.5 of the previous year’s FCI (shaded area below) compared to +/- 1.7 in FY04. In fact, 2977 facilities did not change in FCI, 1630 additional facilities changed by only +/- 0.5 in FCI or one standard deviation of this sample size. Table 2-1a shows that variability of FCI delta points for facilities

from FY05 to FY04. Table 2-1b shows that variability of FCI delta points for facilities from FY04 to FY03. Of particular interest are the outliers, those outside the 3σ variation. Not only have they reduced in number but also they are closer to the 3σ box. These results indicate that the consistency of the process continues to improve. The dark box is the 3σ box.

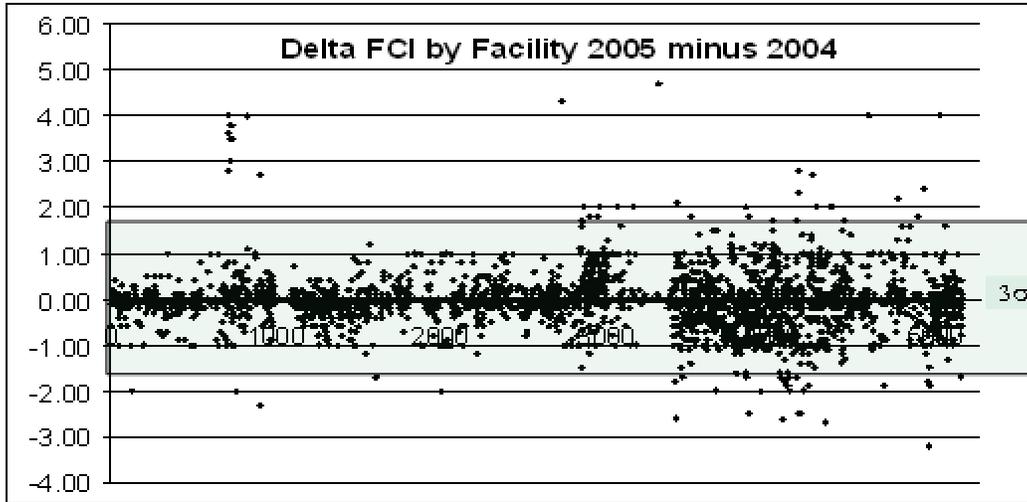


Figure 2-1a Variability of FCI Delta Points between FY05 and FY04

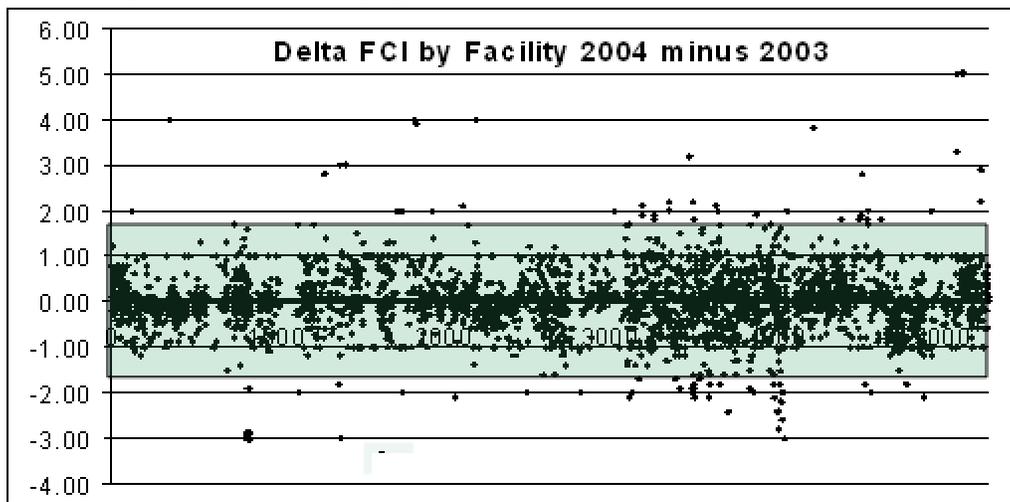


Table 2-1b Variability of FCI Delta Points between FY04 and FY03

Table 2-2a is a histogram showing the distribution of the difference in FCI for each facility between the FY05 and FY04 assessments. The shaded area indicates within one standard deviation, crisscrossed within two standard deviations, and dotted within three standard deviations. Blank indicates facilities that exceed three standard deviations. Table 2-2b is a histogram showing the distribution of the difference in FCI for each facility between the FY04 and FY03 assessments

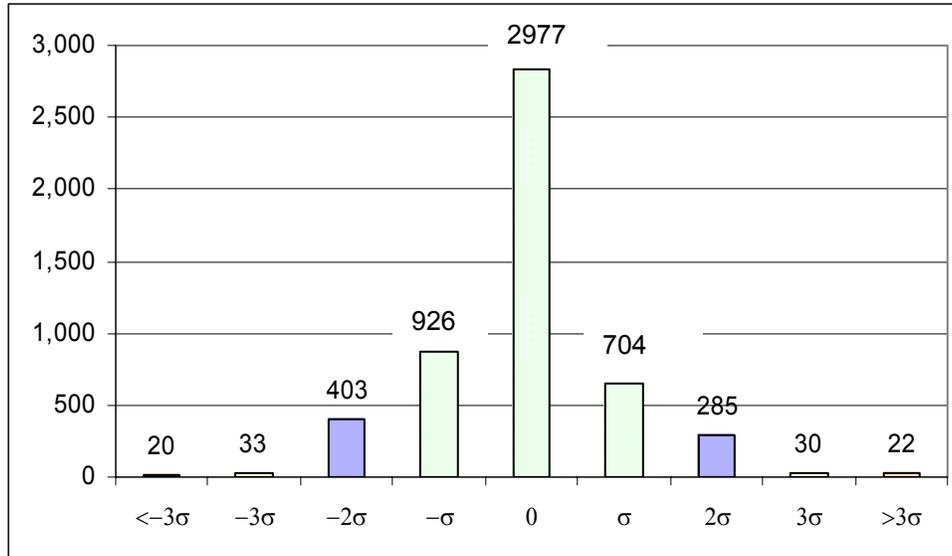


Figure 2-3a Histogram Showing the Distribution of Delta FCI between FY05 and FY04

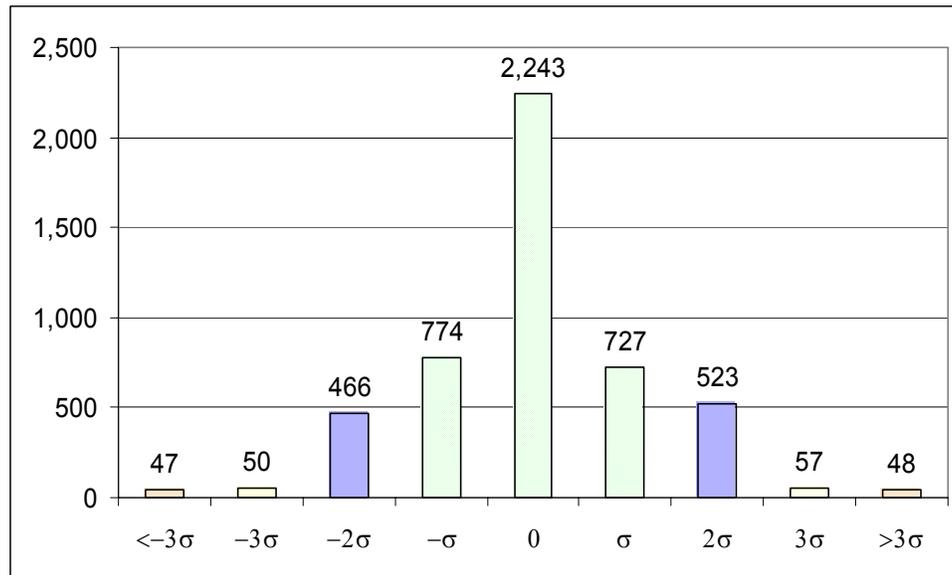


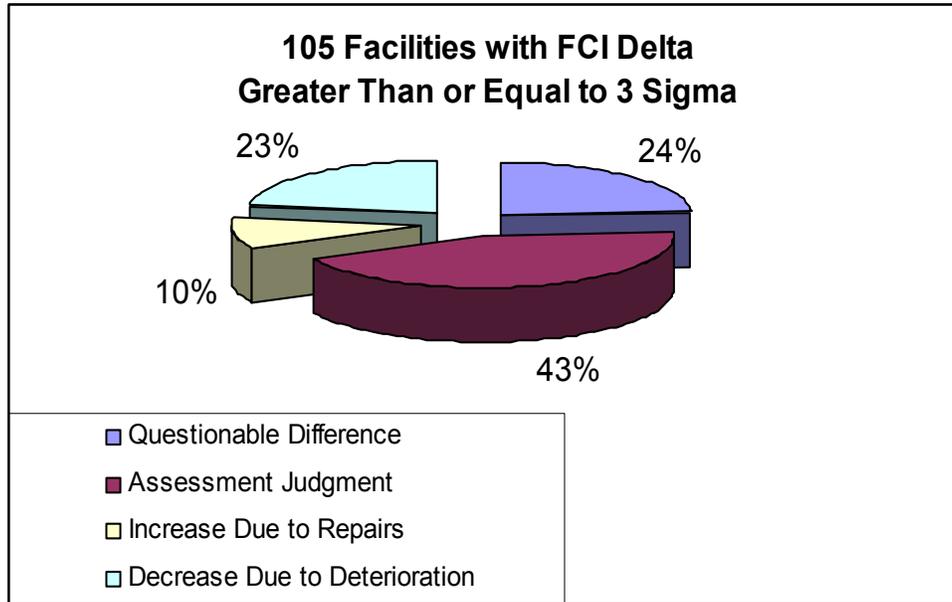
Table 2-3b Histogram Showing the Distribution of Delta FCI between FY03 and FY04

A review of the 105 FCI delta points three standard deviations and greater showed that they were attributable to one of four causes. First, is a questionable difference, which means there is no apparent or known reason for the change. Second, is assessment judgment, where the assessor noted that they made a conscious decision to change the ratings. Third is known repairs, which means the team noted repairs that caused the change. Fourth is decreases in system condition due to deterioration where the assessor made a special note of extreme deterioration. Table 2-3 shows the break down of the facilities with a deviation of three sigma or greater with the following causes:

1. Questionable Difference – Typically facilities that showed a greater than normal drop in condition for unknown or questionable reasons (25 total facilities)
2. Assessment Judgment (validated in subsequent research) (46 total facilities)

3. Increases in system condition due to known repairs (10 total facilities)
4. Decreases in system condition due to deterioration (24 total facilities)

Figure 2-3 Facilities with FCI Greater Than or Equal to 3σ



The fact that only 25 FCI changes of greater than 3σ have unknown or questionable explanations for the changes demonstrates the care and detailed work the teams provide.

2.3 Real Property Inventory Quality Assurance

Because of the RPI review process, improvements have been noted each year in the quality of the data in the RPI. Although the summarized results of this year's assessment do not fully reflect it (see Table 2-4, below), significant improvement in the completeness and accuracy of the data is evident. This is especially true with respect to the categories of "Facilities not in the RPI but found" and "Facilities in the RPI but not found." The improvement in these categories demonstrates the increased attention the Real Property Accountable Officers (RPAOs) are paying to the data in their RPI databases. Although the remaining categories in Table 2-4 do not show the same numeric level of improvement as "Facilities not in the RPI but found" and "Facilities in the RPI but not found," the assessment teams have paid particular attention to correcting these categories.

A comparison of this year's review of the data in the Real Property Inventory (RPI) to results of the previous three years' DM assessments discloses the following:

CATEGORY	2002 DM ASSESSMENT	2003 DM ASSESSMENT	2004 DM ASSESSMENT	2005 DM ASSESSMENT
Facilities not in RPI but found	394	190	156	107
Facilities in RPI but not found	157	130	71	42
Facilities with suspect classifications	167	165	98	152
Facilities with questionable CRVs	182	172	63	76
Facilities w/suspect capacities	*	65	288**	264***

Table 2-4 Comparison Table

[* The 2002 Assessment addressed both suspect capacities and suspect units of measure (UOM). However, since the database automatically inserts the appropriate UOM, depending on the NASA classification of the facility, the issue of “suspect UOM” is no longer addressed as a quality assurance issue separate from an inappropriate NASA classification.

** This figure was generated by an RPI search for facilities that had either “one” listed as a capacity or did not have any capacity listed in the database.]

*** However all capacities for facilities in the RPI except 25 were attained during the assessment for use in the Facilities Sustainment Model

It is important to keep in mind when reviewing the data contained in the appendices to this report that the referenced RPI data was downloaded from the RPI into the Deferred Maintenance database in March of this year, at the commencement of this task. Since the data in the RPI is updated and corrected on a continuous basis, some of the noted irregularities may have been addressed subsequent to compiling this report.

Many of this year’s RPI data issues concerning found or missing facilities may have resulted from the time lag between when a facility is added to a location (or demolished) and when the data concerning that facility is recorded in the RPI. A few RPI issues are simply clerical errors or omissions in entering (or failing to enter) the data. These types of errors or omissions are easily correctible and corrections appear to be ongoing.

As is apparent from a review of the data in Table 2-4, improvement in facility classifications, CRV, and capacity for 2005 accuracy appears to have leveled off. This is somewhat misleading. In the first instance, this year’s DM assessment included a heightened scrutiny of these categories. Secondly, although the assessment teams continue to find facilities with CRVs they consider too high or too low, considerable improvement has been made in assigning a book cost and CRV to every facility as shown in Table 2-4. Finally, making changes to the RPI database to address these anomalies is complicated by the fact that Center personnel who are responsible for the RPI data typically do not have the authority to change the classification, CRV, or capacity of a facility. Instead, the process involves getting the real property manager, as well as the program manager and the facility manager all to agree that a facility classification needs to be changed. A solution to this situation may be to have a team of knowledgeable personnel work with each Center’s Real Property Accountable Officer to make the appropriate corrections to the property cards of the facilities under their cognizance.

Table 2-5 Percentage of CRV Changes from Year to Year

NASA % Change	FY02-03	FY03-04	FY04-05	Change FY02-FY05
CRV	1.2%	3.2%	8.1%	12.1%
ENR inflation rate	1.59%	2.27%	2.68%	6.54%

As noted in prior year reports, the most important issue regarding the data in the RPI continues to be the proper classification of the facility. Although some facilities are found to be incorrectly

classified because their function has changed over time (e.g., former R&D building being converted to an administrative function), most of the remaining problem seems to arise from an informal policy to classify numerous support facilities at a site under the functional classification of the main facility that they support, as opposed to the function that they provide. In addition, problems associated with inappropriate facility classifications are compounded by the fact that the RPI database automatically inserts the unit of measure for the facility, depending upon the classification. Thus, if the facility classification is incorrect, the unit of measure quite often will be as well, and the capacity recorded for the facility will not support the parametric estimating model for facility sustainment costs. The following section gives examples of classification issues.

2.3.1 Facilities Classification

Table 2-6 demonstrates how Centers classify multiple facilities with different functions under one record number. These facilities are assessed as separate facilities since they are physically different buildings with distinct functions; one may serve as an administration building and another as a test cell and then another as a test lab. Building 0018 was assessed as two separate facilities. Building 0035 was assessed as 16 separate facilities.

Table 2-6 Multiple Facilities Under One Record

Fac	Desc	CRV	Cap	Units	Built	NASA Class	On FY05 RPI
0018	FIRE PUMP/GAS COMPRESSOR BLDG.	\$ 8,131,024	2,840	CF	1944	890-85	Yes
0018-1	Fire Pump Building						No
0018-2	Gas Compressor Building						No
0035	RESEARCH COMBUSTION LABORATORY	\$ 8,842,949	18,841	SF	1945	310-22	Yes
0035-1	Office Building					610-10	No
0035-2	Storage					432-90	No
0035-3	Storage					432-10	No
0035-6	Test Cell					310-22	No
0035-7	Cell 22 Control					340-10	No
0035-8	Test Cell					310-22	No
0035-9	Test Cell					310-22	No
0035-10	Rocket Engine Cooling and Materials Research Facility.					340-20	No
0035-13	Silo / Storage					452-10	No
0035-14	Test Cell					310-22	No
0035-15	Test Cell 21 & 22 Storage					310-22	No
0035-16	Storage					452-10	No
0035-17	Electrical Storage					452-10	No
0035-18	Test Cell 23 Storage					310-22	No
0035-20	Cell 31 & 32 , 11 & 12 Storage					310-22	No
0035-21	Consumable Storage Area					432-10	No

When facilities are classified and grouped together like this, it also eliminates from the record the facility's capacity. At one Center 18 of the 29 facilities in a series of facility numbers do not have capacities. Since an RPI property record may show several capacities/UOM such as 1,000 SF and 32,000 GPM and 439,000 HP within its documentation, it becomes important to properly identify the correct NASA classification based on function. These 18 facilities need to have their classifications reviewed because they account for \$92.2 million in CRV that is not adequately included in the Center's overall FSM and PRV models.

Another example of incorrectly classifying and grouping facilities is by using the “catch-all” category. A record found was renamed this year to “Steam and Condensate Lines” from last year’s title of “Other Grounds Improvements.” It does not appear that the title of “Steam and Condensate Lines” correctly describes this item either, since it consists of 11 pages of vouchers that are of all types of items throughout the complex. Examples of items include paving, open drainage and culverts, retaining walls, fire hydrants, sprinkler systems, sidewalks, catch basins, patio, fire hose boxes, excavation, landscaping, fencing, cement pads, etc. For accuracy purposes, many of these items should be transferred to other items within the RPI. As it currently stands, it is difficult to assess this item and to accurately define unit of measure and capacity.

2.3.2 Facility Descriptions

Facilities descriptions continue to be confusing and in some cases misleading. RPAOs should change many of the facility descriptions, especially utilities, to accurately reflect their current use and, where appropriate, their location. Some facilities do not have enough information to describe adequately either their scope or their location. For example, the RPI at Goddard describes facility numbers 948 and 953 as “Utilities.” In reality, they include both the electrical distribution system and the potable water system for areas 200 and 400, respectively. Another example is in Hawaii. There, concrete pads and fresh water storage tanks (some up to 7,500 gallons) were not included in NASA RPI because they were part of Utilities or the “FAC # 444” item in the RPI. In addition, Hawaii does not record electrical substations in the RPI because they are part of the “Utilities” or the FAC #444 item in the RPI. This is different from what assessors have seen at other sites such as Wallops, where there is a separate RPI number for each of those tanks and substations.

2.3.3 DSN RPI Recording

There continues to be major discrepancies between the records in the NASA RPI and Madrid’s property records as found in its *“Real Property Record of Madrid DSCC Buildings and Supporting Facilities”* (RPR). The organization of the utilities and other miscellaneous infrastructure items are recorded differently between the two sets of data. The discrepancies are so confusing as to make the assessment and its associated RPI reconciliation difficult. There seems to be either a breakdown in communications between the Madrid RPAO and the DSN RPAO, who actually enters the data into the RPI for Madrid, or there is a significant time lapse between when records are changed at Madrid and when DSN enter them into the RPI. From the perspective of the DM and FSM, the Madrid RPR contains the most correct data. JPL should enter the data into the NASA RPI as numbered and categorized by Madrid. For a more detailed explanation see the accompanying report *“Significant Observations, Lessons Learned, and Suggestions for Future Improvements.”*

2.4 Facilities Maintenance using Programmatic and Other Funding Sources

There is anecdotal evidence that many programs use programmatic funding to do repair and renewal projects on NASA facilities. This is not surprising and is an acceptable practice within NASA guidance; however, much of this funding may not be reported as required by NASA policy. We found evidence of these procedures at Centers as large as Johnson Space Center and as small as Poker Flat Research Range.

At Johnson, there are plans to replace a cooling tower and do other major repair work (a total of \$1.5M) using programmatic money at one building alone, the Sonny Carter Training Facility. As mentioned previously, this is acceptable within NASA guidance as long as it is reported and tracked appropriately. Poker Flat has replaced the exteriors of almost all its NASA facilities (7 of 8) over the last 3 years, using only available operations and maintenance funds, some of which come from other agencies and programs who use the facilities. Although this is not a large amount of funds, it demonstrates the point that other money is used in the upkeep of NASA facilities.

Although this information is anecdotal and may represent a very small amount of funding, these funding sources may be a reason the NASA facility condition is maintaining and the DM estimate is not going up as quickly as expected. NASA should further investigate this issue to determine the impact of this type of funding and to teach people how to properly record this type of transaction so NASA can capture the full cost of maintaining its facilities.



3.1 Results

- For FY05, the Agency FCI is 3.7 on a scale from 5 (excellent) to 1 (bad) as shown in Table 3-1, Summary Sheet. The FCI for active facilities is 3.7. The FCI for inactive facilities is 3.4. This means that NASA facilities require many minor repairs and some larger repairs, and systems *normally* function satisfactorily but occasionally are *unable to function as intended*. Below are the FCIs for selected groups of facilities.
 - Scientific and R&D facilities - 3.7
 - Mission Operations facilities - 3.8
 - Shuttle Related Facilities - 3.5
 - Low value and remote sites - 3.3

- Active site FCIs range from 3.1 to 4.8, indicating substantial variations in conditions between some sites.

- The Agency-wide FY05 DM cost estimate is approximately \$1.90 billion, which is 8.4% of NASA's CRV. The DM estimate for active sites is about \$1.45 billion and the DM estimate for inactive facilities is close to \$0.45 billion. Below are the DM estimates for selected groups of facilities.
 - Scientific and R&D facilities - \$844 million
 - Mission Operations facilities - \$150 million
 - Shuttle Related Facilities - \$647 million
 - Low value and remote sites - \$1.6 million

- The FY07 Facilities Sustainment Model ran in conjunction with the FY05 DM model is based on an analysis of NASA facilities utilizing the DoD version 6 FSM to ascertain a level of funding required to prevent additional deterioration and deferred maintenance. This year the estimate for FY07 sustainment cost is \$398 million. This is a 10.6% increase over the FY06 estimate, which is attributable to cost factor escalation, and the better accountability of the facilities in the RPI and their associated information, especially capacities.

- For NASA to attain its stated average facility FCI goal of 4.3 for all facilities, it would require an additional capital investment of approximately \$914 million in today's dollars. For active facilities NASA would require \$635 million.

Four data tables follow. (Note: N/A indicates that there is no data required for that cell.)

- Table 3-1 compares site, Center, Directorate, and Agency DM results for active and inactive facilities.⁵ (Note: Some of the numbers in the following tables may not add due to rounding.)
- Table 3-2 shows the DM cost estimates for each of the nine systems by site, Center, Directorate, and the Agency.
- Table 3-3 shows the System Condition Index for each system.
- Table 3-4 displays the facility condition index and deferred maintenance cost by DM facility category.

Table 3-1 FY05 DM Summary Table (\$B) (continues next page)

Description	FY05 CRV Total (\$B)	FY05 DM Total (\$B)	FCI	Active CRV (\$B)	Active DM	Active FCI	Inactive CRV (\$B)	Inactive DM (\$B)	Inactive FCI
NASA Total	\$24.48	\$1.90	3.7	\$21.74	\$1.45	3.7	\$2.75	\$0.45	3.4
Space Operations	\$11.29	\$1.06	3.5	\$10.77	\$0.96	3.6	\$0.53	\$0.10	3.0
Johnson Space Center Total	\$2.00	\$0.11	3.7	\$2.00	\$0.11	3.7	\$0.00	\$0.00	2.1
Johnson Space Center	\$1.53	\$0.10	3.6	\$1.53	\$0.10	3.6	\$0.00	\$0.00	2.1
Ellington Field	\$0.10	\$0.00	4.1	\$0.10	\$0.00	4.1	NA	NA	NA
Palmdale Industrial Plant Total	\$0.04	\$0.00	3.9	\$0.04	\$0.00	3.9	NA	NA	NA
Palmdale, NASA Industrial Plant	\$0.00	\$0.00	3.7	\$0.00	\$0.00	3.7	NA	NA	NA
Palmdale, USAF Industrial Plant	\$0.04	\$0.00	4.0	\$0.04	\$0.00	4.0	NA	NA	NA
White Sands Test Facility Total	\$0.32	\$0.01	4.0	\$0.32	\$0.01	4.0	NA	NA	NA
White Sands Test Facility	\$0.24	\$0.01	4.0	\$0.24	\$0.01	4.0	NA	NA	NA
WSTF Space Harbor	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
White Sands 1st TDRSS	\$0.05	\$0.00	4.1	\$0.05	\$0.00	4.1	NA	NA	NA
White Sands 2nd TDRSS	\$0.03	\$0.00	4.1	\$0.03	\$0.00	4.1	NA	NA	NA
Kennedy Space Center Total	\$4.56	\$0.51	3.4	\$4.49	\$0.50	3.4	\$0.07	\$0.01	3.1
Kennedy Space Center	\$4.35	\$0.49	3.4	\$4.32	\$0.48	3.4	\$0.03	\$0.01	2.9
Cape Canaveral Air Force Station	\$0.21	\$0.02	3.6	\$0.17	\$0.01	3.6	\$0.04	\$0.01	3.3
Transoceanic Abort Landing Site Prgm Total	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Morocco Transoceanic Abort Landing Site	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Marshall Space Flight Center Total	\$2.82	\$0.25	3.6	\$2.54	\$0.19	3.7	\$0.28	\$0.06	3.1
Marshall Space Flight Center	\$1.47	\$0.15	3.6	\$1.32	\$0.12	3.7	\$0.15	\$0.03	2.9
Brigham City, Utah	\$0.00	\$0.00	3.9	\$0.00	\$0.00	3.9	NA	NA	NA
Michoud Assembly Facility	\$1.25	\$0.09	3.7	\$1.14	\$0.07	3.7	\$0.11	\$0.02	3.4
Santa Susanna Field Laboratory	\$0.10	\$0.01	3.4	\$0.07	\$0.01	3.3	\$0.02	\$0.00	3.6
Stennis Space Center Total	\$1.91	\$0.19	3.4	\$1.74	\$0.16	3.5	\$0.17	\$0.03	2.9
Stennis Space Center	\$1.74	\$0.19	3.4	\$1.57	\$0.15	3.4	\$0.17	\$0.03	2.9
SSC Tenants	\$0.17	\$0.01	4.0	\$0.17	\$0.01	4.0	NA	NA	NA
Science	\$7.12	\$0.40	3.9	\$5.34	\$0.22	4.0	\$1.78	\$0.19	3.6
Ames Research Center Total	\$4.03	\$0.27	3.8	\$2.33	\$0.11	3.9	\$1.70	\$0.17	3.6
Ames Research Center	\$2.67	\$0.14	4.0	\$1.68	\$0.05	4.1	\$0.99	\$0.09	3.8
Crows Landing	\$0.08	\$0.01	3.0	\$0.01	\$0.00	3.1	\$0.07	\$0.01	3.0

⁵ The Shiloh site (SMLF) was assessed as part of Ponce De Leon Space Flight Tracking and Data Network (PSTDN) and the Brooks site was done as part of JSC. Downey, Bermuda, and Gambia are no longer assessed.

Fiscal Year 2005 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Description	FY05 CRV Total (\$B)	FY05 DM Total (\$B)	FCI	Active CRV (\$B)	Active DM	Active FCI	Inactive CRV (\$B)	Inactive DM (\$B)	Inactive FCI
Camp Parks	\$0.01	\$0.00	4.0	\$0.01	\$0.00	4.1	\$0.00	\$0.00	3.0
Moffet Federal Airfield	\$1.27	\$0.12	3.4	\$0.64	\$0.05	3.4	\$0.63	\$0.06	3.4
Goddard Space Flight Center Total	\$1.76	\$0.06	4.1	\$1.72	\$0.05	4.2	\$0.04	\$0.01	3.3
Goddard Space Flight Center	\$1.03	\$0.04	4.1	\$1.03	\$0.04	4.1	\$0.00	\$0.00	3.2
Bilateral Ranging Transponder Prgm Total	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
American Samoa Bilateral Ranging Transponder Facility	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Ascension Bilateral Ranging Transponder Facility	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Mobile Laser Site Prgm Total	\$0.00	\$0.00	2.8	\$0.00	\$0.00	3.9	\$0.00	\$0.00	1.0
Bear Lake Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Easter Island Mobile Laser Site	\$0.00	\$0.00	3.9	\$0.00	\$0.00	3.9	NA	NA	NA
Ft. Davis Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Haystack Mobile Laser Site	\$0.00	\$0.00	3.0	\$0.00	\$0.00	3.0	NA	NA	NA
Hawaii Kauai Mobile Laser Site	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Hawaii Maui Mobile Laser Site	\$0.00	\$0.00	3.0	\$0.00	\$0.00	3.0	NA	NA	NA
Kwajalein Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Monument Peak Mobile Laser Site	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Oak Mountain Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Otay Mountain Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Owens Valley Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Platteville Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Quincy Mobile Laser Site	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Tahiti Mobile Laser Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Yarragadee Mobile Laser Site	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Spaceflight Tracking/Data Network Prgm Total	\$0.02	\$0.00	3.8	\$0.02	\$0.00	3.8	NA	NA	NA
Hawaii Spaceflight Tracking/Data Network	\$0.02	\$0.00	3.8	\$0.02	\$0.00	3.8	NA	NA	NA
Ponce De Leon Space Flight Tracking/Data Network	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Space Transportation System Prgm Total	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Yarragadee Space Transportation System Facility	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Verylong Baseline Interferometry Prgm Total	\$0.00	\$0.00	1.3	\$0.00	\$0.00	4.0	\$0.00	\$0.00	1.0
Cabo San Lucas Verylong Baseline Interferometry Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Cerro Tololo Verylong Baseline Interferometry Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Ensenada Verylong Baseline Interferometry Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Iquique Verylong Baseline Interferometry Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Mazatlan Verylong Baseline Interferometry Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Point Arguello Verylong Baseline Interferometry Site	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0
Santiago Verylong Baseline Interferometry Site	\$0.00	\$0.00	4.0	\$0.00	\$0.00	4.0	NA	NA	NA
Socorro Island Verylong Baseline	\$0.00	\$0.00	1.0	NA	NA	NA	\$0.00	\$0.00	1.0

Fiscal Year 2005 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Description	FY05 CRV Total (\$B)	FY05 DM Total (\$B)	FCI	Active CRV (\$B)	Active DM	Active FCI	Inactive CRV (\$B)	Inactive DM (\$B)	Inactive FCI
Interferometry									
Wallops Flight Facility Total	\$0.71	\$0.02	4.2	\$0.67	\$0.02	4.3	\$0.04	\$0.01	3.4
Wallops Flight Facility	\$0.70	\$0.02	4.2	\$0.66	\$0.02	4.2	\$0.04	\$0.01	3.4
National Scientific Balloon Facility, Palestine, TX	\$0.01	\$0.00	4.6	\$0.01	\$0.00	4.6	NA	NA	NA
Poker Flat Research Range, Fairbanks, AK	\$0.01	\$0.00	4.8	\$0.01	\$0.00	4.8	NA	NA	NA
Jet Propulsion Laboratory Total	\$1.33	\$0.07	4.0	\$1.29	\$0.06	4.0	\$0.05	\$0.01	3.7
Jet Propulsion Laboratory	\$0.75	\$0.03	3.9	\$0.75	\$0.03	3.9	NA	NA	NA
Deep Space Communications Prgm Total	\$0.57	\$0.03	4.1	\$0.53	\$0.02	4.1	\$0.05	\$0.01	3.7
Canberra Deep Space Communications Complex, Australia	\$0.14	\$0.01	4.2	\$0.13	\$0.01	4.2	\$0.00	\$0.00	4.7
Goldstone, Deep Space Communications Complex ,CA	\$0.29	\$0.02	4.0	\$0.24	\$0.01	4.1	\$0.04	\$0.01	3.6
Madrid Deep Space Communications Complex, Spain	\$0.15	\$0.01	4.1	\$0.15	\$0.01	4.1	\$0.00	\$0.00	4.0
Table Mountain Observatory	\$0.01	\$0.00	3.7	\$0.01	\$0.00	3.7	NA	NA	NA
Aeronautics Research	\$6.07	\$0.43	3.7	\$5.63	\$0.28	3.8	\$0.44	\$0.16	2.9
Dryden Flight Research Center Total	\$0.31	\$0.01	4.2	\$0.31	\$0.01	4.2	\$0.00	\$0.00	3.4
Dryden Flight Research Center	\$0.31	\$0.01	4.2	\$0.31	\$0.01	4.2	\$0.00	\$0.00	3.4
Glenn Research Center Total	\$2.83	\$0.25	3.7	\$2.61	\$0.13	3.8	\$0.22	\$0.12	2.5
Glenn Research Center	\$2.06	\$0.11	3.8	\$2.06	\$0.11	3.8	NA	NA	NA
Plum Brook Station	\$0.77	\$0.14	3.4	\$0.55	\$0.02	3.8	\$0.22	\$0.12	2.5
Langley Research Center Total	\$2.93	\$0.18	3.7	\$2.72	\$0.14	3.7	\$0.22	\$0.04	3.2
Langley Research Center	\$2.93	\$0.18	3.7	\$2.72	\$0.14	3.7	\$0.22	\$0.04	3.2

Table 3-1 Summary Table

Table 3-2 FY05DM (\$M) by System for NASA as a Whole (continues next page)

Description	Structure	Roof	Exterior	Interior	Electric	HVAC	Plumbing	Convey- -ance	Program Support Equipment
NASA Total	\$365.74	\$246.15	\$134.34	\$160.60	\$454.78	\$206.82	\$164.97	\$10.55	\$156.31
Space Operations	\$196.35	\$168.14	\$81.81	\$116.31	\$235.19	\$104.75	\$125.62	\$7.16	\$27.91
Johnson Space Center Total	\$15.50	\$17.41	\$4.73	\$8.34	\$36.25	\$21.07	\$7.33	\$1.11	\$2.15
Johnson Space Center	\$11.75	\$15.41	\$4.21	\$8.08	\$30.58	\$18.86	\$6.73	\$0.92	\$1.96
Ellington Field	\$0.85	\$0.51	\$0.07	\$0.11	\$1.12	\$1.10	\$0.24	\$0.06	\$0.00
Palmdale Industrial Plant Total	\$0.48	\$0.08	\$0.07	\$0.02	\$0.22	\$0.05	\$0.01	\$0.00	\$0.00
Palmdale, NASA Industrial Plant	\$0.07	\$0.02	\$0.03	\$0.01	\$0.10	\$0.01	\$0.01	\$0.00	\$0.00
Palmdale, USAF Industrial Plant	\$0.41	\$0.06	\$0.04	\$0.00	\$0.12	\$0.03	\$0.01	\$0.00	\$0.00
White Sands Test Facility Total	\$2.42	\$1.41	\$0.39	\$0.13	\$4.33	\$1.05	\$0.36	\$0.13	\$0.19
White Sands Test Facility	\$2.28	\$0.63	\$0.29	\$0.06	\$3.36	\$0.43	\$0.29	\$0.13	\$0.19
WSTF Space Harbor	\$0.02	\$0.00	\$0.01	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
White Sands 1st TDRSS	\$0.01	\$0.77	\$0.08	\$0.06	\$0.83	\$0.14	\$0.04	\$0.00	\$0.00
White Sands 2nd TDRSS	\$0.11	\$0.00	\$0.01	\$0.00	\$0.13	\$0.48	\$0.02	\$0.00	\$0.00
Kennedy Space Center Total	\$74.59	\$119.28	\$31.10	\$87.68	\$74.51	\$35.20	\$83.82	\$1.61	\$0.73
Kennedy Space Center	\$71.84	\$116.76	\$28.58	\$85.97	\$71.10	\$32.29	\$83.07	\$1.54	\$0.72
Cape Canaveral Air Force Station	\$2.75	\$2.51	\$2.52	\$1.71	\$3.40	\$2.91	\$0.76	\$0.07	\$0.01
Transoceanic Abort Landing Site Prgm Total	\$0.01	\$0.01	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Morocco Transoceanic Abort Landing	\$0.01	\$0.01	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00

Fiscal Year 2005 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Description	Structure	Roof	Exterior	Interior	Electric	HVAC	Plumbing	Convey- -ance	Program Support Equipment
Site									
Marshall Space Flight Center Total	\$43.11	\$20.48	\$29.01	\$16.90	\$85.92	\$31.03	\$14.63	\$2.32	\$2.72
Marshall Space Flight Center	\$19.43	\$12.25	\$14.81	\$7.98	\$67.80	\$15.04	\$7.40	\$1.99	\$2.61
Brigham City, Utah	\$0.00	\$0.01	\$0.00	\$0.00	\$0.03	\$0.00	\$0.00	\$0.00	\$0.00
Michoud Assembly Facility	\$20.26	\$7.51	\$13.41	\$8.34	\$13.76	\$15.65	\$5.94	\$0.27	\$0.09
Santa Susanna Field Laboratory	\$3.42	\$0.72	\$0.79	\$0.58	\$4.33	\$0.33	\$1.29	\$0.07	\$0.03
Stennis Space Center Total	\$63.15	\$10.97	\$16.97	\$3.39	\$38.51	\$17.46	\$19.83	\$2.12	\$22.30
Stennis Space Center	\$62.14	\$9.45	\$15.32	\$2.50	\$36.80	\$16.93	\$19.57	\$2.07	\$22.28
SSC Tenants	\$1.01	\$1.52	\$1.64	\$0.89	\$1.71	\$0.53	\$0.27	\$0.04	\$0.03
Science	\$91.01	\$46.18	\$24.90	\$17.58	\$92.13	\$38.17	\$14.33	\$1.21	\$77.75
Ames Research Center Total	\$57.34	\$26.77	\$10.99	\$10.58	\$66.80	\$19.23	\$6.95	\$0.82	\$72.50
Ames Research Center	\$6.86	\$10.50	\$3.07	\$3.63	\$36.00	\$7.81	\$1.76	\$0.76	\$72.50
Crows Landing	\$8.12	\$0.09	\$0.13	\$0.13	\$4.10	\$0.19	\$0.34	\$0.00	\$0.00
Camp Parks	\$0.04	\$0.41	\$0.08	\$0.02	\$0.04	\$0.03	\$0.03	\$0.00	\$0.00
Moffet Federal Airfield	\$42.31	\$15.78	\$7.71	\$6.80	\$26.65	\$11.19	\$4.82	\$0.07	\$0.00
Goddard Space Flight Center Total	\$16.99	\$11.77	\$5.25	\$3.58	\$9.50	\$10.59	\$4.87	\$0.18	\$0.13
Goddard Space Flight Center	\$6.25	\$9.35	\$3.34	\$2.38	\$5.12	\$8.08	\$2.54	\$0.17	\$0.11
Bilateral Ranging Transponder Prgm Total	\$0.00	\$0.00							
American Samoa Bilateral Ranging Transponder Facility	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ascension Bilateral Ranging Transponder Facility	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mobile Laser Site Prgm Total	\$0.80	\$0.03	\$0.10	\$0.02	\$0.34	\$0.06	\$0.00	\$0.00	\$0.00
Bear Lake Mobile Laser Site	\$0.14	\$0.01	\$0.02	\$0.00	\$0.06	\$0.01	\$0.00	\$0.00	\$0.00
Easter Island Mobile Laser Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ft. Davis Mobile Laser Site	\$0.05	\$0.00	\$0.01	\$0.00	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00
Haystack Mobile Laser Site	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Hawaii Kauai Mobile Laser Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Hawaii Maui Mobile Laser Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Kwajalein Mobile Laser Site	\$0.09	\$0.00	\$0.01	\$0.00	\$0.04	\$0.01	\$0.00	\$0.00	\$0.00
Monument Peak Mobile Laser Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Oak Mountain Mobile Laser Site	\$0.11	\$0.00	\$0.01	\$0.00	\$0.05	\$0.01	\$0.00	\$0.00	\$0.00
Otay Mountain Mobile Laser Site	\$0.19	\$0.01	\$0.02	\$0.00	\$0.08	\$0.02	\$0.00	\$0.00	\$0.00
Owens Valley Mobile Laser Site	\$0.06	\$0.00	\$0.01	\$0.00	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Platteville Mobile Laser Site	\$0.12	\$0.00	\$0.01	\$0.00	\$0.05	\$0.01	\$0.00	\$0.00	\$0.00
Quincy Mobile Laser Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tahiti Mobile Laser Site	\$0.02	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Yarragadee Mobile Laser Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Spaceflight Tracking/Data Network Prgm Total	\$0.06	\$0.05	\$0.09	\$0.10	\$0.62	\$0.13	\$0.04	\$0.00	\$0.00
Hawaii Spaceflight Tracking/Data Network	\$0.06	\$0.05	\$0.09	\$0.10	\$0.61	\$0.13	\$0.04	\$0.00	\$0.00
Ponce De Leon Space Flight Tracking/Data Network	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Space Transportation System Prgm Total	\$0.02	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Yarragadee Space Transportation System Facility	\$0.02	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Verylong Baseline Interferometry Prgm Total	\$0.09	\$0.00	\$0.01	\$0.00	\$0.04	\$0.01	\$0.00	\$0.00	\$0.00
Cabo San Lucas Verylong Baseline Interferometry Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Cerro Tololo Verylong Baseline Interferometry Site	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ensenada Verylong Baseline	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Fiscal Year 2005 NASA–Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Description	Structure	Roof	Exterior	Interior	Electric	HVAC	Plumbing	Convey- ance	Program Support Equipment
Interferometry Site									
Iquique Verylong Baseline Interferometry Site	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mazatlan Verylong Baseline Interferometry Site	\$0.04	\$0.00	\$0.01	\$0.00	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00
Point Arguello Verylong Baseline Interferometry Site	\$0.03	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Santiago Verylong Baseline Interferometry Site	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Socorro Island Verylong Baseline Interferometry	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Wallops Flight Facility Total	\$9.76	\$2.33	\$1.70	\$1.08	\$3.37	\$2.30	\$2.29	\$0.01	\$0.03
Wallops Flight Facility	\$9.76	\$2.30	\$1.69	\$1.07	\$3.36	\$2.26	\$2.28	\$0.01	\$0.03
National Scientific Balloon Facility, Palestine, TX	\$0.00	\$0.02	\$0.00	\$0.00	\$0.01	\$0.03	\$0.00	\$0.00	\$0.00
Poker Flat Research Range, Fairbanks, AK	\$0.00	\$0.01	\$0.01	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00
Jet Propulsion Laboratory Total	\$16.68	\$7.63	\$8.66	\$3.42	\$15.83	\$8.35	\$2.51	\$0.21	\$5.11
Jet Propulsion Laboratory	\$3.12	\$5.74	\$2.64	\$2.32	\$10.27	\$7.12	\$1.91	\$0.18	\$0.21
Deep Space Communications Prgm Total	\$13.35	\$1.82	\$5.93	\$1.07	\$5.42	\$1.21	\$0.58	\$0.02	\$4.89
Canberra Deep Space Communications Complex, Australia	\$0.06	\$0.19	\$0.26	\$0.18	\$1.45	\$0.12	\$0.15	\$0.01	\$2.87
Goldstone, Deep Space Communications Complex ,CA	\$12.54	\$0.86	\$2.75	\$0.76	\$3.54	\$1.02	\$0.29	\$0.00	\$1.19
Madrid Deep Space Communications Complex, Spain	\$0.75	\$0.77	\$2.92	\$0.14	\$0.43	\$0.07	\$0.14	\$0.01	\$0.83
Table Mountain Observatory	\$0.21	\$0.07	\$0.08	\$0.03	\$0.13	\$0.01	\$0.01	\$0.00	\$0.00
Aeronautics Research	\$78.38	\$31.84	\$27.63	\$26.71	\$127.47	\$63.90	\$25.03	\$2.18	\$50.66
Dryden Flight Research Center Total	\$1.13	\$2.00	\$0.34	\$0.34	\$2.21	\$1.56	\$0.31	\$0.02	\$0.01
Dryden Flight Research Center	\$1.13	\$2.00	\$0.34	\$0.34	\$2.21	\$1.56	\$0.31	\$0.02	\$0.01
Glenn Research Center Total	\$62.91	\$16.67	\$15.94	\$16.57	\$66.96	\$46.94	\$17.85	\$1.23	\$5.17
Glenn Research Center	\$22.20	\$11.77	\$9.56	\$5.25	\$31.84	\$15.31	\$7.62	\$0.68	\$4.66
Plum Brook Station	\$40.71	\$4.90	\$6.38	\$11.32	\$35.12	\$31.63	\$10.23	\$0.54	\$0.51
Langley Research Center Total	\$14.35	\$13.17	\$11.36	\$9.80	\$58.30	\$15.40	\$6.87	\$0.94	\$45.47
Langley Research Center	\$14.35	\$13.17	\$11.36	\$9.80	\$58.30	\$15.40	\$6.87	\$0.94	\$45.47

Table 3-2 FY04 DM (\$M) by System for NASA as a Whole

Table 3-3 NASA SCI as a Whole (continues next page)

Description	Structure	Roof	Exterior	Interior	Electric	HVAC	Plumbing	Convey- ance	Program Support Equipment
NASA Total	3.9	3.5	3.7	3.6	3.5	3.5	3.5	3.8	3.7
Space Operations	3.7	3.2	3.5	3.3	3.5	3.4	3.3	3.6	3.5
Johnson Space Center Total	3.9	3.5	4.0	3.7	3.4	3.4	3.5	3.5	3.6
Johnson Space Center	3.9	3.4	3.9	3.6	3.3	3.3	3.4	3.6	3.4
Ellington Field	4.0	4.0	4.6	4.6	4.1	3.2	3.8	3.1	NA
Palmdale Industrial Plant Total	3.9	4.1	3.9	3.9	3.8	4.0	3.9	4.0	4.0
Palmdale, NASA Industrial Plant	3.5	4.4	3.8	3.9	3.1	4.0	3.6	NA	NA
Palmdale, USAF Industrial Plant	3.9	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0
White Sands Test Facility Total	4.1	4.0	4.2	4.3	3.7	3.8	4.2	3.2	4.1
White Sands Test Facility	4.1	4.1	4.1	4.2	3.7	4.0	4.2	3.2	4.1
WSTF Space Harbor	4.1	4.2	3.8	4.4	4.0	4.2	3.9	NA	NA
White Sands 1st TDRSS	5.0	3.1	4.1	4.1	3.3	4.0	4.1	NA	NA
White Sands 2nd TDRSS	4.1	5.0	4.8	4.9	4.0	3.0	3.9	NA	NA

Fiscal Year 2005 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Description	Structure	Roof	Exterior	Interior	Electric	HVAC	Plumbing	Conveyance	Program Support Equipment
Kennedy Space Center Total	3.7	2.7	3.5	2.9	3.6	3.3	3.0	3.7	4.0
Kennedy Space Center	3.7	2.7	3.5	2.9	3.6	3.3	3.0	3.7	4.0
Cape Canaveral Air Force Station	3.8	3.5	3.4	3.3	3.4	3.2	3.6	3.8	4.0
Transoceanic Abort Landing Site Prgm Total	4.0	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA
Morocco Transoceanic Abort Landing Site	4.0	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA
Marshall Space Flight Center Total	3.7	4.0	3.4	3.5	3.5	3.5	3.6	3.8	4.1
Marshall Space Flight Center	3.8	3.7	3.5	3.6	3.2	3.4	3.5	3.7	4.1
Brigham City, Utah	4.0	4.0	4.0	4.0	3.0	5.0	5.0	NA	NA
Michoud Assembly Facility	3.7	4.3	3.4	3.3	3.9	3.5	3.7	4.0	3.2
Santa Susanna Field Laboratory	3.6	3.2	3.4	3.1	2.8	3.5	3.0	3.2	3.0
Stennis Space Center Total	3.6	3.4	3.3	3.7	3.3	3.4	3.1	3.4	3.2
Stennis Space Center	3.5	3.2	3.2	3.6	3.3	3.2	3.0	3.4	3.2
SSC Tenants	4.2	3.9	3.8	3.8	3.9	4.1	4.0	4.0	4.4
Science	4.1	3.7	4.0	3.9	3.7	3.7	3.8	4.1	3.8
Ames Research Center Total	3.9	3.5	3.9	3.8	3.5	3.7	3.7	3.9	3.7
Ames Research Center	4.4	3.8	4.1	4.0	3.6	3.8	4.0	3.9	3.7
Crows Landing	3.1	3.0	2.9	2.5	1.7	2.4	2.4	NA	NA
Camp Parks	4.7	2.0	3.0	3.0	3.0	3.0	3.0	NA	NA
Moffet Federal Airfield	3.5	3.2	3.4	3.5	3.2	3.3	3.4	3.9	NA
Goddard Space Flight Center Total	4.2	3.9	4.1	4.1	4.2	3.9	3.9	4.4	4.7
Goddard Space Flight Center	4.1	3.7	4.2	4.1	4.2	3.9	4.0	4.4	4.7
Bilateral Ranging Transponder Prgm Total	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA	NA
American Samoa Bilateral Ranging Transponder Facility	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA	NA
Ascension Bilateral Ranging Transponder Facility	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA	NA
Mobile Laser Site Prgm Total	2.8	2.8	2.8	2.8	2.8	2.7	NA	NA	NA
Bear Lake Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Easter Island Mobile Laser Site	3.9	3.9	3.9	4.0	3.9	4.0	NA	NA	NA
Ft. Davis Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Haystack Mobile Laser Site	3.0	3.0	3.0	3.0	3.0	NA	NA	NA	NA
Hawaii Kauai Mobile Laser Site	4.0	4.0	4.0	4.0	4.0	NA	NA	NA	NA
Hawaii Maui Mobile Laser Site	3.0	3.0	3.0	3.0	3.0	NA	NA	NA	NA
Kwajalein Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Monument Peak Mobile Laser Site	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA	NA
Oak Mountain Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Otay Mountain Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Owens Valley Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Platteville Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Quincy Mobile Laser Site	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA	NA
Tahiti Mobile Laser Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Yarragadee Mobile Laser Site	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA	NA
Spaceflight Tracking/Data Network Prgm Total	4.3	4.2	3.6	3.1	3.2	3.4	3.5	NA	NA
Hawaii Spaceflight Tracking/Data Network	4.4	4.2	3.6	3.0	3.1	3.3	3.4	NA	NA
Ponce De Leon Space Flight Tracking/Data Network	4.0	4.0	4.0	4.0	4.0	4.0	4.0	NA	NA
Space Transportation System Prgm Total	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Yarragadee Space Transportation System Facility	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Verylong Baseline Interferometry Prgm Total	1.5	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA
Cabo San Lucas Verylong Baseline Interferometry Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Cerro Tololo Verylong Baseline	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA

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Description	Structure	Roof	Exterior	Interior	Electric	HVAC	Plumbing	Conveyance	Program Support Equipment
Interferometry Site									
Ensenada Verylong Baseline Interferometry Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Iquique Verylong Baseline Interferometry Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Mazatlan Verylong Baseline Interferometry Site	1.0	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA
Point Arguello Verylong Baseline Interferometry Site	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Santiago Verylong Baseline Interferometry Site	4.0	NA							
Socorro Island Verylong Baseline Interferometry	1.0	1.0	1.0	1.0	1.0	1.0	NA	NA	NA
Wallops Flight Facility Total	4.3	4.2	4.1	4.1	4.1	3.8	3.8	4.7	4.2
Wallops Flight Facility	4.3	4.2	4.1	4.1	4.1	3.8	3.8	4.7	4.2
National Scientific Balloon Facility, Palestine, TX	4.9	4.2	4.6	4.6	4.5	3.8	5.0	NA	4.0
Poker Flat Research Range, Fairbanks, AK	4.9	4.9	4.6	5.0	4.9	4.1	4.3	NA	NA
Jet Propulsion Laboratory Total	4.2	4.1	4.0	3.9	3.7	3.7	3.9	4.2	4.0
Jet Propulsion Laboratory	4.1	4.1	4.1	3.9	3.6	3.6	3.9	4.3	4.2
Deep Space Communications Prgm Total	4.3	4.1	3.9	3.9	3.9	4.2	3.9	4.0	4.0
Canberra Deep Space Communications Complex, Australia	4.8	4.4	4.2	3.9	3.8	4.3	3.8	4.0	3.7
Goldstone, Deep Space Communications Complex, CA	4.2	4.1	3.9	3.8	3.8	4.0	3.9	NA	3.9
Madrid Deep Space Communications Complex, Spain	4.2	3.8	3.4	3.9	4.3	4.5	4.1	4.0	4.4
Table Mountain Observatory	3.8	3.4	3.4	3.8	3.6	4.1	3.9	NA	3.0
Aeronautics Research	3.9	3.8	3.8	3.7	3.4	3.5	3.6	3.9	3.7
Dryden Flight Research Center Total	4.4	3.8	4.4	4.1	3.9	3.9	4.3	4.4	4.8
Dryden Flight Research Center	4.4	3.8	4.4	4.1	3.9	3.9	4.3	4.4	4.8
Glenn Research Center Total	3.8	3.8	3.8	3.8	3.5	3.3	3.5	3.8	4.0
Glenn Research Center	3.8	3.8	3.8	3.9	3.7	3.6	3.6	3.9	4.0
Plum Brook Station	3.8	3.8	3.7	3.4	3.0	2.7	3.3	3.6	3.9
Langley Research Center Total	4.0	3.8	3.7	3.6	3.3	3.6	3.6	3.9	3.7
Langley Research Center	4.0	3.8	3.7	3.6	3.3	3.6	3.6	3.9	3.7

Table 3-3 NASA SCI as a Whole

Table 3-4 Facility Condition and DM by Deferred Maintenance Facility Category

DM Category	NASA Facility Description	CRV Total (\$M)	FCI	DM Total (\$M)	Facility Count
0	Uncategorized Facility/Building	\$18	0.0	\$0	140
1	R&D and Test Buildings	\$6,539	3.8	\$429	481
2	R&D Structures and Facilities	\$412	3.7	\$28	100
3	Wind Tunnels	\$3,174	3.8	\$203	68
4	Engine/Vehicle Static Test Facilities	\$1,371	3.3	\$184	116
5	Administrative Buildings	\$1,977	3.8	\$108	307
6	Training Buildings	\$263	3.6	\$22	22
7	Trailers	\$24	3.7	\$2	236
8	Storage Buildings	\$428	3.9	\$31	427
9	Storage Facilities	\$149	4.0	\$6	362
10	Fuel Storage Tanks	\$107	3.9	\$5	112
10.1	Specialized Liquid Storage Tanks	\$0	4.8	\$0	11
10.2	Fueling Stations & Systems	\$18	4.1	\$0	34
11	Magazines	\$31	4.1	\$1	88
12	Communication and Tracking Buildings	\$198	3.9	\$15	158
13	Communication and Tracking Facilities	\$74	4.2	\$4	137
13.1	Large Antennas	\$400	4.2	\$16	20
13.2	Small Antennas	\$23	3.6	\$3	33
14	Mission Control Operations Buildings	\$368	3.8	\$19	14
15	Lighting	\$61	3.2	\$12	51
16	Electrical Distribution System	\$728	3.8	\$31	78
16.1	Power Generation/Power Plant	\$93	3.8	\$5	51
16.2	Electric Substations, Switchgear & Transformer Yards	\$370	3.8	\$34	211
17	HVAC Distribution	\$505	3.3	\$56	73
17.1	HVAC Generation	\$549	3.8	\$49	101
18	Waste Water Collection & Disposal System	\$133	3.5	\$12	87
18.1	Waste Water Facilities & Treatment Plants	\$53	3.8	\$4	75
18.2	Storm Drains, Ditches, Dams, Retaining walls	\$138	3.4	\$11	46
19	Potable Water Distribution System	\$239	3.5	\$22	133
19.1	Potable Water Facilities & Treatment Plants	\$82	3.9	\$6	77
20	Launch Pads	\$687	3.6	\$35	14
20.1	Launch support camera pads	\$5	3.9	\$0	36
20.2	Launch propellant & high pressure gas facilities	\$191	4.0	\$4	21
21	Pavement	\$1,518	3.7	\$98	210
22	Rail	\$33	3.0	\$3	2
23	Maintenance Facilities and PW Shops	\$508	3.5	\$44	219
23.1	Operational maintenance facilities	\$913	3.6	\$55	56
24	Other Buildings	\$1,598	3.2	\$313	412
25	Other Facilities	\$337	3.9	\$16	333
27	Compressed Air Distribution	\$2	4.0	\$0	1
27.1	Compressed Air Generation	\$80	3.7	\$5	9
28	Prefabricated buildings, various uses	\$28	4.1	\$1	96

* Category 26, Land and Easements are not assessed because they have no DM associated to them.

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4.1 Comparison Results

Before a valid comparison to the FY05 data could be completed, an investigation was made to determine if the data between FY05 and FY04 had to be normalized to account for administrative actions as a result NASA's aggressive pursuit of better, more complete Real Property Inventory (RPI) had to take place. For example, changes in property status, changes in previously estimated CRVs or reductions to the facility inventory between the FY04 and FY05 assessments had to be considered. The only changes found that affected the DM were for facility demolition, \$17 million as shown in Appendix E.

4.1.1 Results

Table 4-1 provides a comparison of the FY04 and the FY05 assessment. Note that at Centers with a lower CRV a small change in facilities condition can change the DM estimate by a very large percentage but not a very large amount of money.

Table 4-1 Comparison Between FY04 and FY05 Assessments (continued next page)

Description	FY04 DM (\$M)	FY05 DM (\$M)	Delta DM (\$M)	% Change	FY04 FCI	FY05 FCI	Delta FCI
NASA Total	\$1,773.37	\$1,900.29	\$126.92	7.16%	3.7	3.7	0.0
Space Operations	\$1,034.65	\$1,063.22	\$28.57	2.76%		3.5	3.5
Johnson Space Center Total	\$132.44	\$113.88	(\$18.56)	-14.02%	3.6	3.7	0.1
Johnson Space Center	\$116.96	\$98.50	(\$18.46)	-15.78%	3.5	3.6	0.1
Ellington Field	\$5.06	\$4.04	(\$1.02)	-20.16%	3.7	4.1	0.4
Palmdale Industrial Plant Total	\$0.86	\$0.94	\$0.08	8.82%	3.9	3.9	0.0
Palmdale, NASA Industrial Plant	\$0.16	\$0.26	\$0.10	59.87%	3.7	3.7	0.0
Palmdale, USAF Industrial Plant	\$0.70	\$0.68	(\$0.02)	-2.84%	3.9	4.0	0.1
White Sands Test Facility Total	\$9.55	\$10.40	\$0.85	8.89%	4.0	4.0	0.0
White Sands Test Facility	\$7.04	\$7.66	\$0.62	8.75%	4.0	4.0	0.0
WSTF Space Harbor	\$0.05	\$0.05	\$0.00	8.34%	4.1	4.0	-0.1
White Sands 1st TDRSS	\$1.78	\$1.94	\$0.16	9.18%	4.1	4.1	110.0
White Sands 2nd TDRSS	\$0.68	\$0.75	\$0.07	9.72%	4.1	4.1	0.0
Kennedy Space Center Total	\$550.91	\$508.52	(\$42.39)	-7.69%	3.4	3.4	0.0
Kennedy Space Center	\$532.90	\$491.86	(\$41.04)	-7.70%	3.4	3.4	0.0
Cape Canaveral Air Force Station	\$17.98	\$16.63	(\$1.35)	-7.51%	3.5	3.6	0.1
Transoceanic Abort Landing Site Prgm Total	\$0.03	\$0.04	\$0.01	20.72%	4.0	4.0	0.0
Morocco Transoceanic Abort Landing Site	\$0.03	\$0.04	\$0.01	20.72%	4.0	4.0	0.0
Marshall Space Flight Center Total	\$212.99	\$246.13	\$33.14	15.56%	3.6	3.6	0.0
Marshall Space Flight Center	\$121.31	\$149.30	\$27.99	23.07%	3.6	3.6	0.0
Brigham City, Utah	\$0.04	\$0.05	\$0.01	17.31%	3.9	3.9	0.0
Michoud Assembly Facility	\$81.47	\$85.23	\$3.76	4.62%	3.6	3.7	0.1
Santa Susanna Field Laboratory	\$10.18	\$11.55	\$1.37	13.43%	3.4	3.4	0.0
Stennis Space Center Total	\$128.76	\$194.70	\$65.94	51.21%	3.6	3.4	-0.2
Stennis Space Center	\$118.96	\$187.07	\$68.11	57.25%	3.6	3.4	-0.2
SSC Tenants	\$9.81	\$7.64	(\$2.17)	-22.16%	3.7	4.0	0.3

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Description	FY04 DM (\$M)	FY05 DM (\$M)	Delta DM (\$M)	% Change	FY04 FCI	FY05 FCI	Delta FCI
Science	\$436.31	\$403.25	(\$33.06)	-7.58%		3.9	3.9
Ames Research Center Total	\$263.85	\$271.98	\$8.13	3.08%	3.8	3.8	0.0
Ames Research Center	\$141.95	\$142.89	\$0.94	0.66%	4.0	4.0	0.0
Crows Landing	\$12.00	\$13.10	\$1.10	9.16%	3.0	3.0	0.0
Camp Parks	\$0.60	\$0.66	\$0.06	9.53%	4.0	4.0	0.0
Moffet Federal Airfield	\$109.30	\$115.34	\$6.04	5.52%	3.4	3.4	0.0
Goddard Space Flight Center Total	\$52.21	\$62.86	\$10.65	20.40%	4.2	4.1	-0.1
Goddard Space Flight Center	\$29.92	\$37.35	\$7.43	24.82%	4.1	4.1	0.0
Bilateral Ranging Transponder Prgm Total	\$0.00	\$0.00	\$0.00	0	4.0	4.0	0.0
Mobile Laser Site Prgm Total	\$1.24	\$1.36	\$0.12	9.48%	2.8	2.8	0.0
Spaceflight Tracking/Data Network Prgm Total	\$0.93	\$1.10	\$0.17	18.49%	3.9	3.8	-0.1
Hawaii Spaceflight Tracking/Data Network	\$0.91	\$1.08	\$0.17	19.02%	3.9	3.8	-0.1
Ponce De Leon Space Flight Tracking/Data Network	\$0.02	\$0.02	(\$0.00)	-5.66%	4.0	4.0	0.0
Space Transportation System Prgm Total	\$0.02	\$0.03	\$0.01	36.15%	1.0	1.0	0.0
Verylong Baseline Interferometry Prgm Total	\$0.15	\$0.16	\$0.01	6.14%	1.3	1.3	0.0
Wallops Flight Facility Total	\$19.95	\$22.87	\$2.92	14.62%	4.2	4.2	0.0
Wallops Flight Facility	\$19.82	\$22.76	\$2.94	14.82%	4.2	4.2	0.0
National Scientific Balloon Facility, Palestine, TX	\$0.07	\$0.07	\$0.00	6.38%	4.6	4.6	0.0
Poker Flat Research Range, Fairbanks, AK	\$0.06	\$0.04	(\$0.02)	-41.40%	4.7	4.8	0.1
Jet Propulsion Laboratory Total	\$67.94	\$68.40	\$0.46	0.68%	4.0	4.0	0.0
Jet Propulsion Laboratory	\$37.40	\$33.54	(\$3.86)	-10.33%	3.8	3.9	0.1
Deep Space Communications Prgm Total	\$30.02	\$34.30	\$4.28	14.26%	4.2	4.1	-0.1
Canberra Deep Space Communications Complex, Australia	\$4.70	\$5.30	\$0.60	12.72%	4.2	4.2	0.0
Goldstone, Deep Space Communications Complex, CA	\$20.03	\$22.95	\$2.92	14.60%	4.1	4.0	-0.1
Madrid Deep Space Communications Complex, Spain	\$5.28	\$6.05	\$0.77	14.58%	4.1	4.1	0.0
Table Mountain Observatory	\$0.53	\$0.56	\$0.03	6.36%	3.7	3.7	0.0
Aeronautics Research	\$364.25	\$433.82	\$69.57	19.10%		3.7	3.7
Dryden Flight Research Center Total	\$6.81	\$7.94	\$1.13	16.56%	4.2	4.2	0.0
Dryden Flight Research Center	\$6.81	\$7.94	\$1.13	16.56%	4.2	4.2	0.0
Glenn Research Center Total	\$236.63	\$250.23	\$13.60	5.75%	3.7	3.7	0.0
Glenn Research Center	\$103.89	\$108.89	\$5.00	4.81%	3.7	3.8	0.1
Plum Brook Station	\$132.75	\$141.34	\$8.59	6.47%	3.5	3.4	-0.1
Langley Research Center Total	\$120.81	\$175.65	\$54.84	45.40%	3.8	3.7	-0.1
Langley Research Center	\$120.81	\$175.65	\$54.84	45.40%	3.8	3.7	-0.1

Table 4-1 Comparison between FY03 and FY04 Assessments

- The Agency FCI remained at 3.7.
 - Active sites remained unchanged at 3.7.
 - Inactive sites decreased 0.1 to 3.4.
 - Scientific and R&D facilities decreased 0.1 to 3.7
 - Mission operations facilities increased 0.1, to 3.8
 - Shuttle related facilities increased 0.1 to 3.5
 - Low value and remote sites remained the same at 3.3

- The DM estimate for the Agency increased from \$1.77 billion in the FY04 assessment to \$1.90 billion in the FY05 assessment, an increase of 7.16%.
 - The DM of active sites increased from \$1.36 billion to \$1.45 billion, a difference of \$45 million, or an increase of 3%.

- The DM of inactive sites increased from \$410 million in FY04 to \$450 million in FY05, a difference of \$40 million, or a increase of 10.0%
 - The DM of scientific and R&D facilities increased from \$823 million in FY04 to \$844 million in FY05
 - The DM of mission operations facilities decreased from \$164 million in FY04 to \$150 million in FY05.
 - The DM of shuttle related facilities decreased from \$681 million in FY04 to \$647 million in FY05.
 - The DM of low value and remote sites total DM increased from \$1.4 million in FY04 to \$1.6 million in FY05, equivalent to the change in inflation.
- Only the HVAC and Conveyance systems showed a decrease in DM estimate. The HVAC system DM estimate decreased from \$245 million to \$206 million, and the Conveyance system DM estimate decreased from \$12 million to \$11 million.
 - Program Support Equipment showed a decrease of 0.1 in SCI to 3.7. All others remained the same.

4.2 Explanation of Significant Changes in FCI and DM Estimates Between Assessments

The following are explanations for changes in the deferred maintenance estimate of over 20% with a change of at least \$2.5 million, and a change of over 0.5 in FCI per site as shown in Table 4-3, which shows a comparison between FY04 and FY05 for such sites. Rounding of numbers will cause some columns and rows not to add properly.

Table 4-2 Comparison of DM Estimate (\$M) and FCI Between FY04 and FY05

Description	FY04 DM (\$M)	FY05 DM (\$M)	Delta DM (\$M)	% Change	FY04 FCI	FY05 FCI	Delta FCI
Goddard Space Flight Center	\$29.92	\$37.35	\$7.43	24.82%	4.1	4.1	0.0
Langley Research Center	\$120.81	\$175.65	\$54.84	45.40%	3.8	3.7	-0.1
Marshall Space Flight Center	\$121.31	\$149.30	\$27.99	23.07%	3.6	3.6	0.0
Stennis Space Center	\$118.96	\$187.07	\$68.11	57.25%	3.6	3.4	-0.2

4.2.1 Goddard Space Flight Center

Although the Goddard FCI remained at 4.1, the DM estimate rose from \$29.92 million to \$37.35 million. This was not the result of any single occurrence at anyone building, rather analysis shows that two systems, roof and exterior, showed significant increases. The roof DM estimate increased by \$2.9 million and the exterior showed an increase of \$2.2 million. 19 facilities showed a decrease of 1 in ratings for roof system, and there were 15 facilities with an increased rating of 1. The difference is six facilities with a CRV of over \$20 million had a decrease and there were no increases in ratings for facilities over \$20 million. There was simply an overall worsening of the condition of the roofs in larger facilities at Goddard. The exterior situation is nearly the same. \$1.3 million of the 2.2 million increase in DM was found in four buildings (12, 16, 21, and 6) with a CRV of over \$25 million. Once again this indicates a slight and expected degradation of the condition of the exterior on high value facilities.

4.2.2 Langley Research Center

Langley had an increase in its DM estimate of \$54.84 million or about 45.4% from FY04 (\$120.81 million) to FY05 (\$175.65 million). Noteworthy changes having significant impact on the final DM calculation are as follows:

- Facility number 640 has been in an inactive/permanently mothballed status for years and the site does not foresee the possibility of it being brought back into service. Condition ratings were downgraded from ‘3’ to ‘2’ in the following categories due to observed conditions, age and obsolescence of major facility systems – Interior, Electrical, HVAC, Plumbing, and Equipment. These changes resulted in a \$23.7 million increase in DM.
- Facility number 1251 is in relatively good condition. The assessment teams downgraded plumbing and equipment from a ‘4’ to a ‘3’ condition rating. Since this facility has a CRV of \$228 million, small rating changes have a significant impact. These changes resulted in a \$13.3 million increase in total DM.
- Facilities 1212, 1230, 1236, 1244, 1247D, 1268, 1293B, 641, 643, and 890-70 are high value facilities with CRVs that range from \$15 mil to \$311 mil. The incremental changes in their condition ratings resulted in corresponding individual increases in DM between \$500K and 1.9 million and a combined increase for them all of just over \$10 million.
- \$8 million in CRV was deleted from the RPI due to demolitions, resulting in a slight commensurate decrease in associated DM. Although more than 90 facilities were placed in “abandoned” status, the \$2.4 million in DM associated with them is still reflected in the total site DM, and will be until they are no longer part of the RPI.

4.2.3 Marshall Space Flight Center

Although the FCI remained at 3.6 in FY05, Marshall’s DM estimate increased 23.07% to \$149.30. The CRV for all MSFC facilities increased an average of 9% between FY04 and FY05 because of recommendations made in the FY04 DM report. In addition to the revaluation, some system ratings for significant CRV facilities were reduced because of corrosion, observed wear and tear, and/or age. Examples are:

- The electrical system at Facility 4670 (\$103,234,757 CRV) was downgraded from 3 to 2 for age based on observed condition and additional input from maintenance personnel.
- The structural system at Facility 4487 (\$93,179,714 CRV) was downgraded from 4 to 3 because of corrosion.
- The electrical system at Facility 4550 (\$50,780,466 CRV) was downgraded from 3 to 2 for age and because it was partially inoperable.
- The structural system at Facility 4481 (\$39,971,176 CRV) was downgraded from 4 to 3 because settling and cracking had worsened over the past 12 months.
- The exterior of Facility 4705 (\$37,230,578 CRV) was downgraded from 4 to 3 because the paint condition worsened.

4.2.4 Stennis Space Center

Stennis Space Center’s DM estimate increased from \$118.96 in FY04 to \$187.07 in FY05 (57% increase). Ratings for structure (4 to 3) and exterior (3 to 2) were reduced at Test Stands B-1 (Facility 4220, \$203 million CRV) and B-2 (Facility 4221, \$125 million CRV) because of increased corrosion. As a result of these changes, the DM estimate for the category

“Engine/Vehicle Static Test Facilities” increased in DM estimate from \$132 million in FY04 to \$181 million in FY05. Ratings for two utility systems, the HPG System (Facility 0041, \$61,632,978.9854 CRV) and the HPIW Distribution System (Facility 0400, \$14,918,165.49 CRV), were reduced due to leaks in the systems.

4.3 Trend Analysis

Discounting FY02 because it was the first assessment and the model was being refined, Table 4-3 shows the FCI of NASA facilities has remained constant, and the DM estimate has increased slightly. The slight decline in FY04 is directly attributable to what

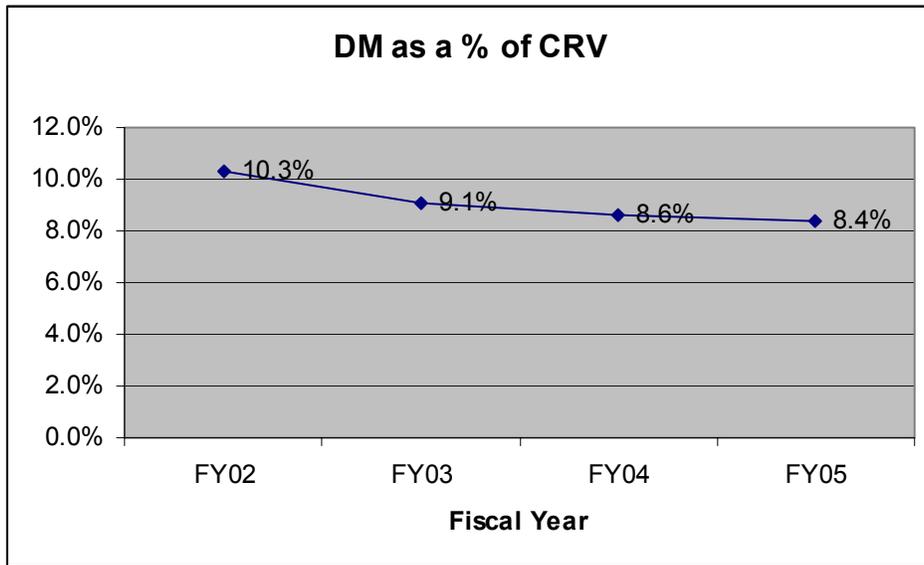
NASA	FY02	FY03	FY04	FY05
FCI	3.6	3.7	3.7	3.7
DM (B)	\$2.00	\$1.82	\$1.77	\$1.90
CRV (B)	\$21.40	\$21.66	\$22.38	\$24.35
DM as % of CRV	10.3%	9.1%	8.6%	8.4%

Table 4-3 Trending of FCI, DM and CRV

has been determined to be incorrectly lower ratings assigned the structure and exterior of Test Stands B-1 and B-2 at Stennis Space Center (Table 4-2). During the FY04 assessment, before two teams were required to assess all facilities with a CRV in excess of \$100M, the team misinterpreted the condition of the facilities due to recently painted exteriors and structural elements that caused the facilities to appear in better condition than they were. Without the changes in the condition of the test stands at Stennis, the FY04 would be \$1.82 million.

However, the DM as a percentage of the CRV has been on a downward trend as shown in Figure 4-1. Dedicated maintenance professionals using cutting age maintenance programs are leading a successful NASA maintenance program, which is holding its facilities’ condition steady, but to assume the same amount of funding could continue to hold this condition, and the DM as a percent of CRV would still decrease would be premature. Over the past few years, unusual funding circumstances have helped the difference between DM estimate and CRV. Recent hurricane damage has forced needed repair and renewal projects at both Langley Research Center in FY03 and Kennedy Space Center in FY04. This \$175 million of renewal money was unexpected and not planned. There was extra facility funding for the “Return to Flight” program that was also added to the program. These extra funding sources, along with unaccounted for programmatic money that supports facilities, has held off an expected decline in facility condition, but it cannot be counted on to maintain facilities NASA facilities at the current condition in the future.

Figure 4-1 Trending Chart





5.1 Observations

- Critical facilities are operating in good condition only because of superior maintenance practices.
- In an effort to save operations and maintenance funds, some Centers have started to maximize space utilization by consolidating personnel in fewer facilities and mothballing the unoccupied facilities. However, assessment teams observed unusually severe deterioration to interior finishes due to incorrect climate control in the mothballed facilities.
- The electrical systems are critical to NASA, yet they continue to have one of the lowest condition assessments (3.5) and the highest DM value (\$454.8 million) of the nine assessed systems. This assessment rating indicates that this system “*may not function as intended*” with the reliability required by NASA, especially within R&D and operational facilities. The condition of four categories that encompass electrical utilities, “Lighting,” “Electrical Distribution Systems,” “Substations, Switchgear & Transformer Yards,” and “Power Generation/Power Plant,” are holding steady with FCIs of 3.2, 3.8, 3.8, and 3.7 respectively.
- The majority (9 of 13) of Centers that showed an increase in condition in Table 3-1, had such a slight increase in FCI (less than 0.06) that the only reason they recorded a higher FCI was because they broke the rounding threshold and were rounded to the next higher integer.
- The staffs of the governmental and contractor organizations have a good understanding of their facilities, a good overall maintenance program, and proper plans and projects in place to replace/repair various items based on funding availability. Maintenance issues are more a reflection of budget constraints than maintenance performance.
- The quality of the RPI data has improved significantly especially in the CRVs. There are still issues with capacities, however.
- The single largest RPI problem continues to be the misclassification or no classification of facilities within the RPI. The misclassification of a facility or the grouping of several different types of facilities under a single book value supplies incorrect information to the DM parametric model. Incorrect information such as incorrect book values, incorrect UOM, and incorrect facility system percentages result in a DM estimate that does not accurately reflect the condition status of the facilities on the ground. This is an obstacle to producing the highest quality data possible.
- Having the RPAOs accompany the assessment teams greatly benefited both the assessment team and the RPAOs. The RPAO’s and assessment team leaders solved many issues on the spot, which would have gone unresolved in the past. The teams and the

RPAOs were able to discuss more complex issues, and the RPAO's were able to take them for action with a better understanding of the issue. In some cases, even these complex issues were resolved before the teams left the sites.

5.2 Conclusions

- An FCI of 3.7 indicates that NASA's facilities are in fair condition, which is defined as "*occasionally are unable to function as intended.*" The critical facilities (scientific and operations) are generally in better condition than the other facilities, however, these ratings are too low for critical facilities because the potential still exists that missions and programs may be impacted.
- There has not been a noticeable change in NASA's overall facility condition since the FY02 assessment. NASA is only able to maintain this condition by having an excellent, highly efficient maintenance program, and through unprogrammed supplemental maintenance and repair funding from programmatic sources and from funds in support of natural disasters. It should not be anticipated that the Agency's present level of maintenance funding combined with its existing Construction of Facilities (CoF) capital renewal program would result in any improvement in facilities conditions or reductions in the DM estimate.
- NASA must continue to prioritize the maintenance on its aging critical facilities and high CRV facilities, some of which may not be in the appropriate condition to meet program mission requirements.
- At current funding levels, only through a reduction of inventory will there be a significant reduction in future deferred maintenance levels. However, it must be noted that assessment teams observed that the improper mothballing of facilities might cause more damage than the money saved by closing the facility.

5.3 Recommendations

- NASA should study the use of unrecorded programmatic funding used to upgrade facilities to determine, if possible, the amount of money spent but untracked.
 - Both the National Scientific Balloon Facility at Palestine, Texas, Poker Flat Research Range, and the site at Brigham City, Utah, are small sites that are capable of being assessed using a remote assessment technique. NASA should assess these sites using non-visit methods.
 - NASA should issue specific guidance on the appropriate maintenance for mothballed facilities.
 - NASA policy should direct that site utility system real property records be divided into appropriate systems such as electrical, chilled water, sewage, and potable water. This will not only help account for the associated DM cost, but will also aid in estimating the sustainment costs of those facilities.
 - NASA should determine whether the low value remote sites that are abandoned sites are still NASA property, whether NASA has transferred them to the local government, or if NASA should transfer them to the local government.
-

- The RPAOs should continue to accompany an assessment team to get a first hand look at the condition of their RPI and their facilities and to get an in-depth understanding of the issues associated with the accounting of facilities.
- NASA should continue to encourage an aggressive demolition program.
- NASA should perform another full facilities condition assessment and DM estimate in FY06. This would create a five-year statistical base, for future reference. After that, NASA should perform condition assessments on 1/3 of its facilities each year. This has a few advantages: The assessment could act as a full facilities inventory as required every three years; This would keep the cost of the condition assessments to a minimum; and it would continue to hone and improve the capabilities of the assessment teams.

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APPENDIX A. THE NASA DM METHOD

A.1 INTRODUCTION

The NASA Deferred Maintenance (DM) Parametric Estimating Method was adopted in August 2001. NASA commissioned a pilot of the DM method at Marshall Space Flight Center (MSFC) in late 2001. Three two-person teams completed the MSFC assessments. The analysis from that test resulted in minor adjustments to the method. During the full assessment, the DM method was further refined as the data from various inspections was analyzed.

A.2 THE THEORETICAL MODEL

This process of documenting deferred maintenance is designed to be a simplified approach based on existing empirical data. The method assumes that:

- condition assessments are performed at the system level rather than the component level;
- simple condition levels are used;
- there are a limited number of systems to assess; and
- the current replacement values (CRV) of the systems and the facility they support are available

To perform the deferred maintenance estimate, a parametric cost estimate model similar to Figure A-1 is used. This is a model that uses cost estimating relationships (CERs) based on existing engineering data and associated algorithms to establish cost estimates. For example, detailed cost estimates for the repair of a building system (i.e., its plumbing system) can be developed using very precise work measurement standards. However, if history has demonstrated that repairs have normally cost about 25% of the original value, then a detailed estimate need not be performed and can simply be computed at the 25% (CER) level. It is important, though, that any CERs used be carefully tested for validity using standard statistical approaches.

Parametric techniques focus on the cost drivers, not the miscellaneous details. The drivers are the controllable system design or planning characteristics, and have a predominant effect on system cost. This technique uses the few important parameters that have the most significant cost impact on the product being estimated, in this case the deferred maintenance of systems within a facility.

A.2.1 Establish Deferred Maintenance Facility Category Codes

The first steps in the process are to determine the facilities to be assessed, and to group them by categories. The category codes group facilities whose systems are similar and have the approximate relative system CRV percentage values. For example, one category may be administrative buildings. These are facilities that function like office buildings, and have a structure, a roof, an exterior, interior finishes, and typical mechanical systems (HVAC, electrical and plumbing). Another category may be laboratories. Laboratories have the same systems as an administrative building, with structure, roof, exterior, interior finishes and mechanical systems. But their percent contribution to the CRV will be different, so these building types need to be separate in the model. Other facilities may include antennas, fueling stations, and other structures that have correspondingly different cost models for purposes of estimating DM.

Correct mapping of like facilities is essential to ensuring that all systems contributions to the CRV, and thus the DM, are accounted for.

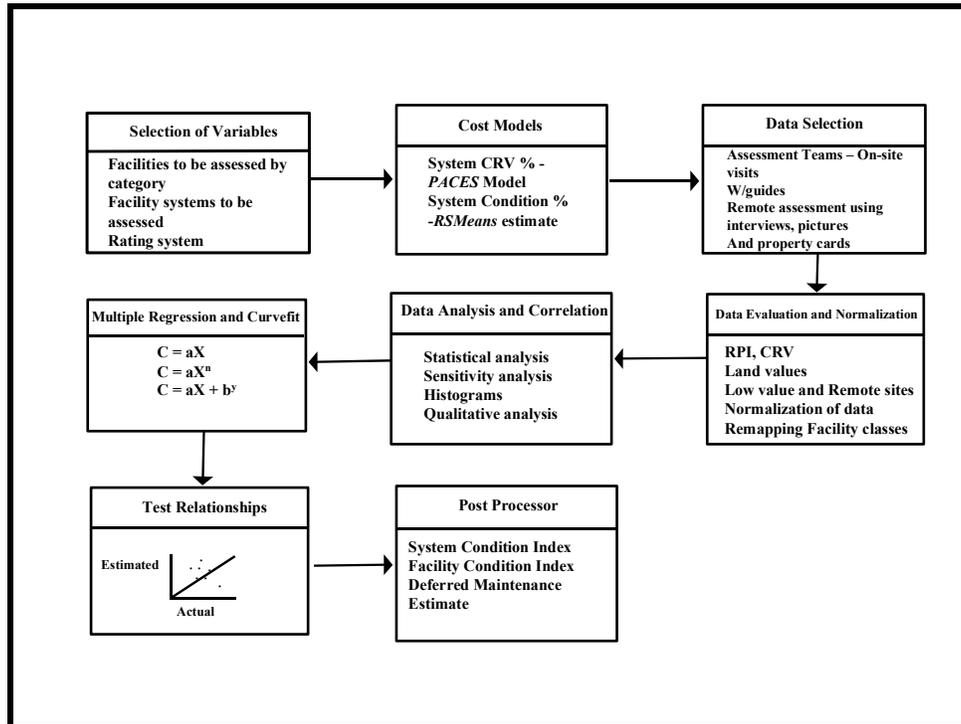


Figure A-1. Theoretical Model for Parametric Estimates

A.2.2 Determine Facility Systems to be Assessed

Once the facilities are categorized, the facility systems to be assessed are identified by using building system classification. An example of such a system is the American Society for Testing of Materials (ASTM) UNIFORMAT II Classification for Building Elements. The system includes, but is not limited to structure, roof, exterior, interior finishes, and mechanical systems.

A.2.3 Determine System CRV Percentages

Each system is then assigned representative cost factors based on the estimated percent contribution of the major system to total CRV of the facility within a facility category. For example, in a simple administrative building the structure may contribute 35% to the CRV, the roof 15%, the exterior 10%, the interior 10% and the mechanical systems 30%; all contributing to equal 100% of the CRV. In complex laboratory and testing facilities, electrical systems make up a larger percentage of the overall building cost; so the breakdown might be structure 25%, roof 15%, exterior 10%, interior 10% and the mechanical systems 40%. The system CRV percentages are derived from existing engineering data and adjusted, if necessary, to meet unique facility types.

A.2.4 Establish Condition Assessment Rating Scheme

A condition rating scheme must be established. Rating schemes can range from very simple to very complex. NASA chose a simple 5-tiered condition code system.

Condition Assessment Level

- **5: Excellent.** Only normal scheduled maintenance required.
- **4: Good.** Some minor repairs needed. System normally functions as intended.
- **3: Fair.** More minor repairs and some infrequent larger repair required. System occasionally unable to function as intended.
- **2: Poor.** Significant repairs required. Excessive wear and tear clearly visible. Obsolete. System not fully functional as intended. Repair parts not easily obtainable. Does not meet all codes.
- **1: Bad.** Major repair or replacement required to restore function. Unsafe to use.

A.2.5 Determine System Condition CRV Percentage

A significant component of the DM estimate is the application of a system condition CRV percentage based on the assigned condition rating for each system. The system condition CRV percentages, based on existing engineering data, increase as the condition of the system gets lower ratings, creating a larger DM estimate. For example, (using the condition assessments above) if the structure of a facility receives a 5 rating its contribution to DM is 0% because there is typically no deferred maintenance for this rating. However, if the structure received a 3 rating its contribution to the deferred maintenance will be 27% of the CRV of the building. The system condition percentages also vary by system. Continuing with the example, in the same building, a 3 rating for the electrical system may contribute 10% of the CRV, or the plumbing system may contribute 27% of the CRV.

A.2.6 Facility Condition Index Calculations

After the condition rating scheme was established, teams went to the field to assess the facilities using the rating system above. The teams rated each system in each facility and entered that information into the database from which is generated a System Condition Index (SCI) for each system, and a Facility Condition Index (FCI) for each facility, site, and the Agency as a whole. SCI is calculated by first determining the CRV of the system in question by multiplying the facility CRV by the % system CRV. The value of these system CRVs are then totaled. Next, the system CRV for each facility is normalized or weighted by dividing the system CRV by the sum of all the system CRVs. This quotient is then multiplied by its respective assessment rating. These “weighted” SCI are then added together to determine the facilities SCI. The SCI calculation can be calculated for the site, installation, Center, Directorate, or Agency levels.

The FCI is the CRV normalized sum of the condition ratings for each system within each facility. The building FCI is a simple calculation that weights each of the nine system condition ratings by its associated system CRV percentage per DM category. In each system, the rating is multiplied by its system CRV percentage to get a weighted SCI. The sum of the nine weighted SCIs equals the facility’s FCI. Table A-1 is an example.

Facility Description	Facility CRV \$	STRUC		EXT		ROOF		HVAC		ELEC		PLUMB		CONV		INTF		EQUIP		FCI
		Insp Rat	% Sys CRV																	
WAREHOUSE	1,172,019	4	0.40	3	0.19	2	0.06	0	0.18	3	0.20	0	0.02	0	0	3	0.15	0	0	3.3
COVERED STORAGE	102,267	5	0.63	5	0.22	5	0.11	0	0.03	5	0.04	0	0.01	0	0	0	0.04	0	0	5.0
FEMA EQUIPMENT STORAGE SHED	92,789	5	0.48	5	0.17	5	0.05	0	0.15	5	0.15	0	0.15	0	0	5	0.15	0	0	5.0
GENERAL WAREHOUSE	7,781,631	4	0.60	4	0.15	4	0.10	3	0.04	3	0.06	4	0.01	0	0	4	0.04	0	0	3.9
ADMINISTRATION BUILDING	12,166,903	5	0.19	5	0.17	3	0.06	4	0.16	4	0.18	4	0.05	5	0.03	5	0.16	0	0	4.4
AUDITORIUM	6,306,944	3	0.22	4	0.17	4	0.06	4	0.16	2	0.18	4	0.05	0	0.03	2	0.16	0	0	3.1
MAIN LIBRARY	5,716,090	5	0.19	4	0.17	4	0.06	4	0.16	4	0.18	4	0.05	4	0.03	4	0.16	0	0	4.2
PHOTOTECHNOLOGY LAB.	10,960,633	4	0.18	3	0.19	4	0.04	3	0.15	4	0.20	4	0.04	5	0.01	5	0.15	5	0.04	3.9

Table A-1. Facility FCI Example

Table A-2 is an example of an FCI for a Center. The Center FCI value is a sum of each facility’s CRV normalized FCI. Each facility CRV is divided by the total Center CRV. That quotient is then multiplied by each facility’s FCI producing a CRV normalized FCI. (Weighted FCI = (Facility CRV ÷ Center CRV) × Facility FCI). The sum of these weighted facility FCIs provides a total Center FCI.

Center "A"		Facility FCI	Weighted FCI
Facility Description	Facility CRV \$		
WAREHOUSE	1,172,019.00	3.3	0.1
COVERED STORAGE	102,267.00	5.0	0.0
FEMA EQUIPMENT STORAGE SHED	92,789.00	5.0	0.0
GENERAL WAREHOUSE	7,781,631.00	3.9	0.7
ADMINISTRATION BUILDING	12,166,903.00	4.5	1.2
AUDITORIUM	6,306,944.00	3.1	0.4
MAIN LIBRARY	5,716,090.00	4.2	0.5
PHOTOTECHNOLOGY LAB.	10,960,633.00	3.9	1.0
Center "A" Totals	44,299,276.00		3.9

Table A-2. Center FCI Example

A.2.7 Deferred Maintenance Calculation

The facility DM estimate is determined by adding the deferred maintenance estimates of the nine facility systems. Table A-3 provides a sample deferred maintenance estimate for an administrative facility (DM category 5) with a CRV of \$10 million.

System	System %	CRV Total \$	System Rating	System Condition CRV %	DM \$
Structure	0.18	1,800,000	5	0.00	0
Exterior	0.17	1,700,000	4	0.05	85,000
Roofing	0.05	500,000	4	0.05	25,000
HVAC	0.16	1,600,000	3	0.15	240,000
Electrical	0.18	1,800,000	4	0.05	90,000
Plumbing	0.05	500,000	3	0.15	75,000
Conveying	0.06	600,000	5	0.00	0
Interior Finishes	0.15	1,500,000	3	0.20	300,000
Facility Equipment	0.00	0	0	0.00	0
Total	1.00	10,000,000			\$815,000

Table A-3. Sample Deferred Maintenance Calculation

A.3 THE MODEL AS USED

A.3.1 Deferred Maintenance Facility Category Codes

Using the NASA real property inventory (RPI), the first step in building the DM database was to map each of the over 400 NASA facility classes into 42 Deferred Maintenance Facility Categories, as shown in Table A-4. It was necessary to reduce the number of NASA classes to simplify data management. It is important to develop the correct facility category to provide more complete reflection of the system CRV percentages in the different facility types, ultimately creating a more representative DM estimate. The categories were determined based on facility similarity. For example, deferred maintenance category 12, Communication and Tracking Buildings, includes NASA facility classes 131 and 140. Category 13, Communications and Tracking Facilities, includes NASA facility classes 132 and 141. These facilities may include antennas, fueling stations, or other structures that have correspondingly different cost models for purposes of estimating deferred maintenance from those in category 12.

Table A-4 Mapping of NASA facility classes into DM class(continued next page)

Facility Type	NASA Facility Category Class
R&D and Test Buildings	220-11, 220-12, 220-13, 310-10, 310-15, 310-20, 310-21, 310-22, 310-30, 310-40, 310-41, 310-50, 310-60
R&D Structures and Facilities	320-10, 320-20, 320-21, 320-22, 320-30, 320-40, 320-41, 320-50, 320-70, 390-00
Wind Tunnels	330-10, 330-20, 330-30, 330-40, 330-60, 330-70, 331-10, 331-20, 331-30, 331-40, 331-60, 331-70
Engine/Vehicle Static Test Facilities	340-10, 340-20, 345-10, 345-50, 350-10, 350-20, 355-10, 355-20, 355-30, 355-40, 355-50
Administrative Buildings	141-20, 610-10, 610-20, 610-90
Training Buildings	171-00, 179-00
Trailers	630-30, 630-31, 630-32, 630-34, 630-36, 630-37
Storage Buildings	153-10, 153-90, 442-10, 610-30
Storage Facilities	345-20, 421-30, 432-10, 432-90, 442-20, 442-30, 442-40, 442-50, 442-60, 442-90, 452-10, 452-11, 452-12, 471-10, 471-20, 471-30, 471-40
Fuel Storage Tanks	126-90, 411-10, 411-20, 411-30, 411-40, 411-50, 411-60, 411-90, 423-10, 423-20, 423-90, 461-10, 461-20, 461-30, 461-90
Specialized Liquid Storage Tanks	
Fueling Stations and Systems	121-10, 121-20, 121-90, 122-10, 122-20, 122-90, 123-10, 123-90

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Facility Type	NASA Facility Category Class
Magazines	421-90, 422-15, 422-20, 422-30, 422-90, 424-10, 424-20, 424-30
Communication and Tracking Buildings	131-10, 131-15, 131-20, 131-25, 131-30, 131-35, 131-40, 131-45, 131-50, 131-90, 140-10, 140-20, 140-30, 140-40, 140-50, 140-90
Communication and Tracking Facilities	132-10, 132-20, 132-30, 132-40, 132-50, 132-90, 141-30, 141-40, 141-50, 141-90
Large Antennas	
Small Antennas	320-60
Mission Control Operations Buildings	381-10
Lighting	136-10, 136-20, 136-30, 136-50, 136-90, 812-20, 812-40, 812-50, 812-70, 812-80
Electrical Distribution System	382-70, 811-90, 812-30, 812-35, 812-90
Power Generation/Power Plant	811-10, 811-20, 811-30, 811-40, 811-50, 811-60, 811-70, 811-80
Electric Substations, Switchgear & Transformer Yards	812-10, 812-60
HVAC Distribution	822-10, 822-20, 823-20, 823-30, 824-10, 824-20, 824-30, 824-40, 842-10, 890-10, 890-15, 890-20, 890-25, 890-30, 890-35, 890-45, 890-50, 890-60, 890-65, 890-70, 890-85, 890-90
HVAC Generation	821-10, 821-20, 821-30, 821-40, 821-50, 890-40, 890-55, 890-75, 890-80
Waste Water Collection & Disposal System	831-20, 832-10, 832-20, 832-30, 832-40, 832-90, 871-60
Waste Water Facilities & Treatment Plants	831-10, 831-30, 831-40, 831-50, 831-90
Storm drains, Ditches, Dams, Retaining walls	871-10, 871-20, 871-30, 871-40, 871-50, 871-90
Potable Water Distribution System	345-40, 841-20, 841-30, 841-35, 841-40, 841-45, 841-50, 841-55, 842-12, 842-15, 842-30, 842-35, 843-10, 843-20, 843-30, 843-40, 843-50, 843-60
Potable Water Facilities & Treatment Plants	841-10, 841-70
Launch Pads	382-10, 382-11, 382-14, 382-60, 382-80
Launch support camera pads	382-13
Launch propellant & high pressure gas facilities	382-30, 382-31
Pavement	111-10, 111-11, 111-12, 111-20, 111-21, 111-22, 112-10, 112-11, 112-12, 113-20, 113-21, 113-22, 141-10, 851-10, 851-11, 851-12, 851-20, 851-22, 851-90, 851-91, 851-92, 852-10, 852-11, 852-12, 852-20, 852-21, 852-22, 852-30, 852-31, 852-32, 852-90, 852-91, 852-92, 860-10, 860-30, 860-40
Rail	
Maintenance Facilities and PW Shops	219-10, 219-11, 219-20, 220-10
Operational maintenance facilities	212-10, 212-20, 212-30, 212-40, 212-50, 220-14
Other Buildings	381-20, 381-30, 381-40, 381-50, 381-60, 382-15, 510-00, 641-10, 641-20, 641-30, 641-40, 711-00, 712-00, 730-10, 730-20, 730-25, 730-40, 730-65, 730-70, 730-90, 740-18, 740-26, 740-30, 740-33, 740-40, 740-43, 740-46, 740-53, 740-54, 740-56, 740-73, 740-76, 740-83, 740-88, 740-90, 740-95, 872-20, 872-30, 872-90
Other Facilities	126-10, 152-20, 152-40, 152-60, 152-90, 154-10, 154-20, 154-30, 154-90, 163-10, 163-20, 163-30, 163-90, 164-10, 164-20, 164-30, 164-90, 361-10, 361-20, 361-30, 361-40, 631-10, 631-20, 631-30, 631-40, 690-10, 690-20, 690-90, 750-10, 750-20, 750-30, 750-40, 750-50, 750-60, 750-90, 750-95, 833-10, 833-20, 833-30, 833-40, 833-90, 860-20, 860-50, 860-90, 872-10, 872-40, 872-50, 880-10, 880-20, 880-30, 880-40, 880-50, 880-90, 890-95
Land & Easements	911-10, 911-20, 911-21, 911-22, 911-30, 911-31, 911-32, 911-33, 911-40, 911-50, 912-10, 912-11, 912-13, 912-20, 913-10, 913-20, 913-30, 913-40, 913-50, 913-60, 913-61, 913-62, 913-63, 914-10, 914-20, 921-10, 921-20, 921-30, 921-40, 921-50, 921-60, 921-90, 922-10, 922-20, 922-30, 923-10, 923-20, 923-40, 923-50, 923-60, 932-10, 932-20, 932-30, 932-40, 932-50, 932-60, 932-90
Compressed Air Distribution	
Compressed Air Generation	
Prefabricated buildings, various uses	620-10, 620-90, 630-10, 630-11, 630-12, 630-14, 630-16, 630-17, 630-20, 630-21, 630-22, 630-24, 630-26, 630-27
Berthing and Housing	

A.3.2 Facility Systems

The DM facility systems were developed from a review of other DM estimating methods for facilities and the ASTM UNIFORMAT II Classification for Building Elements. The following nine systems were selected for the NASA DM method:

Structure: foundations, superstructure, slabs and floors, and pavements that are adjacent to, and considered part of, the facility.

Exterior: wall coatings, windows, doors, and exterior sealants.

Roofing: roof coverings, openings, gutters and flashing.

HVAC: heating, ventilating and air conditioning systems, including controls and balancing devices.

Electrical: service and distribution, lighting, communications, security and fire protection wiring and controls.

Plumbing: water, sewer and fire protection piping, or piping for steam, gas, or water distribution in specialty systems (e.g., tanks, generation plants, etc.).

Conveying: elevators, escalators, cranes and other lifts.

Interior: all interior finishes including wall coverings, flooring, and ceilings.

Program Support Equipment: installed in the facility to provide support for operational testing or research. For example, additional ventilation equipment or separate HVAC systems required only to support special testing or programs.

A.3.3 Current Replacement Value and Facility System CRV Percentages

The NASA RPI system contains the CRV for each facility. Table A-5 shows how the CRV is apportioned between each of the nine facility systems. The CRV System percentages are derived from the *Parametric Cost Estimating System (PACES)*⁶, an accepted estimating tool for federal construction projects. The *PACES* method was derived from an evaluation of more than \$40 billion of federal facilities projects.

Table A-5. DM Categories with CRV % Values (continues next page)

DM Cat	NASA_BLDG	STRUC	EXT	ROOF	HVAC	ELEC	PLUMB	CONV	INTF	EQUIP	SUM
1	R&D and Test Buildings	0.18	0.19	0.04	0.15	0.20	0.04	0.01	0.15	0.04	1.00
2	R&D Structures and Facilities	0.40	0.17	0.01	0.06	0.25	0.02	0.02	0.03	0.04	1.00
3	Wind Tunnels	0.30	0.05	0.01	0.01	0.15	0.01	0.01	0.01	0.45	1.00
4	Engine/Vehicle Static Test Facilities	0.38	0.03	0.01	0.04	0.26	0.01	0.03	0.02	0.22	1.00
5	Administrative Buildings	0.19	0.17	0.06	0.16	0.18	0.05	0.03	0.16	0.00	1.00

⁶ *PACES* is an integrated PC-based parametric budgeting and cost estimating system developed by Earth Tech (<http://earthtech.talpart.com>) that prepares parametric cost estimates for new facility construction and renovation. It was developed for military facility application and will soon be commercialized for use in the general building, industrial facilities, and transportation industries. *PACES* is available to military personnel via the U.S. Air Force. A U.S. Government employee can obtain a copy of the current military version of *PACES* by contacting the Air Force Civil Engineer Support Agency.

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DM Cat	NASA_BLDG	STRUC	EXT	ROOF	HVAC	ELEC	PLUMB	CONV	INTF	EQUIP	SUM
6	Training Buildings	0.18	0.20	0.05	0.12	0.21	0.05	0.01	0.18	0.00	1.00
7	Trailers	0.20	0.19	0.06	0.18	0.20	0.02	0.00	0.15	0.00	1.00
8	Storage Buildings	0.60	0.15	0.10	0.04	0.06	0.01	0.00	0.04	0.00	1.00
9	Storage Facilities	0.55	0.22	0.11	0.03	0.04	0.01	0.00	0.04	0.00	1.00
10	Fuel Storage Tanks	0.70	0.13	0.02	0.00	0.10	0.05	0.00	0.00	0.00	1.00
10.1	Specialized Liquid Storage Tanks	0.51	0.13	0.02	0.00	0.14	0.20	0.00	0.00	0.00	1.00
10.2	Fueling Stations & Systems	0.40	0.10	0.05	0.05	0.15	0.20	0.00	0.05	0.00	1.00
11	Magazines	0.33	0.30	0.05	0.06	0.15	0.02	0.00	0.09	0.00	1.00
12	Comm. & Tracking Buildings	0.21	0.20	0.05	0.16	0.18	0.05	0.00	0.15	0.00	1.00
13	Comm. & Tracking Facilities	0.55	0.10	0.02	0.05	0.26	0.00	0.00	0.02	0.00	1.00
13.1	Large Antennas	0.20	0.20	0.02	0.05	0.15	0.02	0.01	0.02	0.33	1.00
13.2	Small Antennas	0.50	0.30	0.00	0.00	0.10	0.00	0.00	0.00	0.10	1.00
14	Mission Control Operations Buildings	0.22	0.13	0.05	0.15	0.20	0.04	0.02	0.10	0.09	1.00
15	Lighting	0.17	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	1.00
16	Electrical Distribution System	0.39	0.03	0.00	0.00	0.58	0.00	0.00	0.00	0.00	1.00
16.1	Power Generation/Power Plant	0.30	0.10	0.05	0.10	0.39	0.01	0.00	0.05	0.00	1.00
16.2	Electric Substations, Switchgear & Transfer Yards	0.10	0.07	0.00	0.00	0.83	0.00	0.00	0.00	0.00	1.00
17	HVAC Distribution	0.30	0.10	0.00	0.00	0.33	0.27	0.00	0.00	0.00	1.00
17.1	HVAC Generation	0.20	0.10	0.05	0.35	0.10	0.15	0.00	0.05	0.00	1.00
18	Waste Water Collection & Disposal System	0.50	0.02	0.02	0.00	0.05	0.41	0.00	0.00	0.00	1.00
18.1	Waste Water Facilities & Treatment Plants	0.34	0.10	0.05	0.03	0.15	0.32	0.00	0.01	0.00	1.00
18.2	Storm drains, Ditches, Dams, Retaining walls	0.90	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	1.00
19	Potable Water Distribution System	0.38	0.05	0.02	0.00	0.05	0.50	0.00	0.00	0.00	1.00
19.1	Potable Water Facilities & Treatment Plants	0.25	0.05	0.05	0.03	0.24	0.37	0.00	0.01	0.00	1.00
20	Launch Pads	0.51	0.10	0.03	0.03	0.25	0.04	0.02	0.02	0.00	1.00
20.1	Launch support camera pads	0.80	0.10	0.00	0.00	0.10	0.00	0.00	0.00	0.00	1.00
20.2	Launch propellant & high pressure gas facilities	0.48	0.05	0.02	0.00	0.20	0.25	0.00	0.00	0.00	1.00
21	Pavement	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
22	Rail	0.95	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	1.00
23	Maintenance Facilities & PW Shops	0.20	0.14	0.06	0.13	0.30	0.09	0.00	0.08	0.00	1.00
23.1	Operational maintenance facilities	0.20	0.14	0.06	0.13	0.28	0.09	0.02	0.08	0.00	1.00
24	Other Buildings	0.22	0.15	0.12	0.10	0.15	0.11	0.00	0.15	0.00	1.00
25	Other Facilities	0.71	0.10	0.02	0.05	0.10	0.01	0.00	0.01	0.00	1.00
26	Land & Easements	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
27	Compressed Air Distribution	0.50	0.00	0.00	0.00	0.10	0.40	0.00	0.00	0.00	1.00
27.1	Compressed Air Generation	0.25	0.10	0.05	0.05	0.15	0.35	0.00	0.05	0.00	1.00
28	Prefab buildings, various uses	0.18	0.17	0.05	0.15	0.15	0.15	0.00	0.15	0.00	1.00
29	Berthing & Housing	0.15	0.17	0.09	0.16	0.18	0.07	0.02	0.16	0.00	1.00

Table A-5. DM Categories with CRV % Values (continued from previous page).

A.3.4 Estimated Repair Cost as a Percentage of CRV by System Condition

SYSTEM	5	4	3	2	1
STRUC	0	1	10	25	150
EXT	0	1	10	50	101
ROOF	0	9	38	75	150
HVAC	0	2	13	63	133
ELEC	0	2	13	63	133
PLUMB	0	2	10	57	121
CONV	0	2	13	50	100
INTF	0	1	10	50	101
EQUIP	0	2	13	50	100

Table A-6. System Condition Percentages.

Percentages over 100 account for demolition and disposal costs

Each condition rating has a corresponding system condition CRV percentage. These percentages vary by system type, and are provided in Table A-6. This table is crucial to the applicability of the DM method and as such it received analysis by several engineering sources. Through the use of a survey of major and minor repairs at Kennedy Space Center (KSC), combined with an estimated original construction cost using *RSMeans*⁷ estimating tools, system condition percentages have been developed for each of the nine systems per each of the five ratings. Actual repair costs for a variety of facilities at KSC such as Landing Aids Control Building, the Cafeteria (Multi-Function Facility), Electromagnetic Lab, Operations Building #1, and Logistics Facility were used to establish the repair costs. The CRVs of these facilities ranged from \$602,000 to \$22 million.

The estimates for the various levels of repair work were compared to an estimated cost for the system construction. These comparisons (expressed as percentages) translate into the DM Condition Percentages used in the DM model. The process began with the 1 rating, where the cost for a major repair was established. That cost was then compared to the estimated original construction cost producing a maximum system condition percentage. For example, a 1 rating in structure equates to 150% of the maximum repair cost of the structure of a facility including some demolition and disposal cost. The system condition percentages for 2 through 4 were then established using the same method. However, according to the U.S. Army Corps of Engineers (USACE), 50% of the replacement value is the decision point to determine whether a system should be repaired or replaced. Because a 2 rating is where this decision point falls, the USACE standard was applied as a rule. The rule stated that a 2 equals at most 50% of the 1 rating system condition percentage.

For example, even though the calculated value for 2 in the system category of Roofing was 90%, the highest the rating could be is 1/2 of the calculated value for the 1 rating (150% in this case),

⁷ R.S. Means. *CostWorks 2003 Version 6.1*; 1996-2003. *RSMeans* is North America's leading supplier of construction cost information. A product line of Reed Construction Data, *RSMeans* provides accurate and up-to-date cost information that helps owners, developers, architects, engineers, contractors, and others to carefully and precisely project and control the cost of both new building construction and renovation projects.

which equals 75% because that is when the replacement of the roof would most likely occur. The 5 rating was left at 0% because what small DM would occur in this rating would be negligible.

APPENDIX B. REMOTE AND LOW VALUE SITES NOT VISITED BUT ASSESSED

Table B-1. Summary Table for Remote and Low Value Sites

Name	Fac	Desc	Status	CRV	DM	FCI
American Samoa Bilateral Ranging Transponder Facility	723	BRT FACILITY	Active	\$19,665	\$289	4.0
Ascension Bilateral Ranging Transponder Facility	999	BRT FACILITY	Active	\$6,995	\$103	4.0
Bear Lake Mobile Laser Site	702	MOBILE LASER SITE	InActive	\$172,826	\$239,969	1.0
Easter Island Mobile Laser Site	997	MOBILE LASER SITE - OTHER	Active	\$171,925	\$2,527	4.0
Easter Island Mobile Laser Site	998	UTILITIES	Active	\$17,398	\$1,973	3.0
Easter Island Mobile Laser Site	999	COMMUNICATIONS	Active	\$1,770	\$22	4.0
Ft. Davis Mobile Laser Site	708	MOBILE LASER SITE	InActive	\$60,989	\$84,683	1.0
Haystack Mobile Laser Site	705	MOBILE LASER SITE	Active	\$93,664	\$10,622	3.0
Hawaii Kauai Mobile Laser Site	703	MOBILE LASER SITE	Active	\$53,341	\$757	4.0
Hawaii Maui Mobile Laser Site	710	MOBILE LASER SITE	Active	\$38,289	\$4,342	3.0
Kwajalein Mobile Laser Site	704	MOBILE LASER SITE	InActive	\$110,984	\$154,101	1.0
Monument Peak Mobile Laser Site	712	MOBILE LASER SITE	Active	\$195,309	\$2,871	4.0
Oak Mountain Mobile Laser Site	714	MOBILE LASER SITE	InActive	\$135,851	\$188,629	1.0
Otay Mountain Mobile Laser Site	700	MOBILE LASER SITE	InActive	\$230,091	\$319,481	1.0
Owens Valley Mobile Laser Site	709	MOBILE LASER SITE	InActive	\$77,498	\$107,605	1.0
Platteville Mobile Laser Site	711	MOBILE LASER SITE	InActive	\$139,901	\$194,252	1.0
Quincy Mobile Laser Site	701	MOBILE LASER SITE	Active	\$398,178	\$5,853	4.0
Tahiti Mobile Laser Site	713	MOBILE LASER SITE	InActive	\$23,186	\$32,194	1.0
Yarragadee Mobile Laser Site	706	MOBILE LASER SITE	Active	\$519,074	\$7,630	4.0
Yarragadee Space Transportation System Facility	724	STS FACILITY	InActive	\$19,611	\$27,229	1.0
Cabo San Lucas Verylong Baseline Interferometry Site	715	VLBI LASER STATION	InActive	\$3,855	\$5,352	1.0
Cerro Tololo Verylong Baseline Interferometry Site	721	CERRO TOLOLO VLBI SITE	InActive	\$12,880	\$17,884	1.0
Ensenada Verylong Baseline Interferometry Site	716	LASER STATION	InActive	\$3,029	\$4,205	1.0
Iquique Verylong Baseline Interferometry Site	720	LASER STATION	InActive	\$7,390	\$10,261	1.0
Mazatlan Verylong Baseline Interferometry Site	001	BUNK/GUARDHOUSE	InActive	\$3,950	\$4,962	1.0
Mazatlan Verylong Baseline Interferometry Site	999	LASER STATION	InActive	\$48,328	\$67,104	1.0
Point Arguello Verylong Baseline Interferometry Site	718	9-METER VLBI SITE	InActive	\$33,867	\$47,024	1.0
Santiago Verylong Baseline Interferometry Site	719	LASER STATION	Active	\$12,284	\$123	4.0
Socorro Island Verylong Baseline Interferometry	717	LASER STATION	InActive	\$1,652	\$2,294	1.0
Morocco Transoceanic Abort Landing Site	TAL-003	MOROCCO/UTILITIES (ELECTRIC)	Active	\$385,161	\$6,086	4.0
Morocco Transoceanic Abort Landing Site	TAL-001	MOROCCO ADMIN/SUPPORT BLDG	Active	\$1,507,588	\$28,192	4.0
Morocco Transoceanic Abort Landing Site	TAL-002	MOROCCO/UTILITIES (WATER)	Active	\$121,148	\$1,938	4.0
Total				\$4,627,675	\$1,580,557	3.3

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Table B-2. DM Cost by System for Remote and Low Values Sites

Name	Fac	Desc	Struc DM	Roof DM	Ext DM	Intf DM	Elec DM	Hvac DM	Plumb DM	Conv DM	Equip DM
American Samoa Bilateral Ranging Transponder Facility	723	BRT FACILITY	\$159	\$6	\$29	\$6	\$75	\$14	\$0	\$0	\$0
Ascension Bilateral Ranging Transponder Facility	999	BRT FACILITY	\$57	\$2	\$10	\$2	\$27	\$5	\$0	\$0	\$0
Bear Lake Mobile Laser Site	702	MOBILE LASER SITE	\$131,983	\$4,799	\$23,997	\$4,799	\$62,392	\$11,998	\$0	\$0	\$0
Easter Island Mobile Laser Site	997	MOBILE LASER SITE - OTHER	\$1,390	\$51	\$253	\$51	\$657	\$126	\$0	\$0	\$0
Easter Island Mobile Laser Site	998	UTILITIES	\$1,223	\$39	\$197	\$0	\$513	\$0	\$0	\$0	\$0
Easter Island Mobile Laser Site	999	COMMUNICATIONS	\$16	\$0	\$0	\$0	\$6	\$0	\$0	\$0	\$0
Ft. Davis Mobile Laser Site	708	MOBILE LASER SITE	\$46,576	\$1,694	\$8,468	\$1,694	\$22,018	\$4,234	\$0	\$0	\$0
Haystack Mobile Laser Site	705	MOBILE LASER SITE	\$6,373	\$212	\$1,062	\$212	\$2,762	\$0	\$0	\$0	\$0
Hawaii Kauai Mobile Laser Site	703	MOBILE LASER SITE	\$454	\$15	\$76	\$15	\$197	\$0	\$0	\$0	\$0
Hawaii Maui Mobile Laser Site	710	MOBILE LASER SITE	\$2,605	\$87	\$434	\$87	\$1,129	\$0	\$0	\$0	\$0
Kwajalein Mobile Laser Site	704	MOBILE LASER SITE	\$84,756	\$3,082	\$15,410	\$3,082	\$40,066	\$7,705	\$0	\$0	\$0
Monument Peak Mobile Laser Site	712	MOBILE LASER SITE	\$1,579	\$57	\$287	\$57	\$746	\$144	\$0	\$0	\$0
Oak Mountain Mobile Laser Site	714	MOBILE LASER SITE	\$103,746	\$3,773	\$18,863	\$3,773	\$49,044	\$9,431	\$0	\$0	\$0
Otay Mountain Mobile Laser Site	700	MOBILE LASER SITE	\$175,715	\$6,390	\$31,948	\$6,390	\$83,065	\$15,974	\$0	\$0	\$0
Owens Valley Mobile Laser Site	709	MOBILE LASER SITE	\$59,183	\$2,152	\$10,761	\$2,152	\$27,977	\$5,380	\$0	\$0	\$0
Platteville Mobile Laser Site	711	MOBILE LASER SITE	\$106,839	\$3,885	\$19,425	\$3,885	\$50,506	\$9,713	\$0	\$0	\$0
Quincy Mobile Laser Site	701	MOBILE LASER SITE	\$3,219	\$117	\$585	\$117	\$1,522	\$293	\$0	\$0	\$0
Tahiti Mobile Laser Site	713	MOBILE LASER SITE	\$17,707	\$644	\$3,219	\$644	\$8,370	\$1,610	\$0	\$0	\$0
Yarragadee Mobile Laser Site	706	MOBILE LASER SITE	\$4,197	\$153	\$763	\$153	\$1,984	\$382	\$0	\$0	\$0
Yarragadee Space Transportation System Facility	724	STS FACILITY	\$14,976	\$545	\$2,723	\$545	\$7,080	\$1,361	\$0	\$0	\$0
Cabo San Lucas Verylong Baseline Interferometry Site	715	VLBI LASER STATION	\$2,944	\$107	\$535	\$107	\$1,392	\$268	\$0	\$0	\$0
Cerro Tololo Verylong Baseline Interferometry Site	721	CERRO TOLOLO VLBI SITE	\$9,836	\$358	\$1,788	\$358	\$4,650	\$894	\$0	\$0	\$0
Ensenada Verylong Baseline Interferometry Site	716	LASER STATION	\$2,313	\$84	\$421	\$84	\$1,093	\$210	\$0	\$0	\$0
Iquique Verylong Baseline Interferometry Site	720	LASER STATION	\$5,644	\$205	\$1,026	\$205	\$2,668	\$513	\$0	\$0	\$0
Mazatlan Verylong Baseline Interferometry Site	001	BUNK/GUARDHOUSE	\$1,042	\$248	\$992	\$744	\$893	\$794	\$248	\$0	\$0
Mazatlan Verylong Baseline Interferometry Site	999	LASER STATION	\$36,907	\$1,342	\$6,710	\$1,342	\$17,447	\$3,355	\$0	\$0	\$0
Point Arguello Verylong Baseline Interferometry Site	718	9-METER VLBI SITE	\$25,863	\$940	\$4,702	\$940	\$12,226	\$2,351	\$0	\$0	\$0
Santiago Verylong Baseline Interferometry Site	719	LASER STATION	\$123	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Socorro Island Verylong Baseline Interferometry	717	LASER STATION	\$1,262	\$46	\$229	\$46	\$596	\$115	\$0	\$0	\$0
Morocco Transoceanic Abort Landing Site	TAL-003	MOROCCO/UTILITIES	\$2,374	\$0	\$183	\$0	\$3,530	\$0	\$0	\$0	\$0

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Name	Fac	Desc	Struc DM	Roof DM	Ext DM	Intf DM	Elec DM	Hvac DM	Plumb DM	Conv DM	Equip DM
		(ELECTRIC)									
Morocco Transoceanic Abort Landing Site	TAL-001	MOROCCO ADMIN/SUPPORT BLDG	\$6,202	\$1,692	\$4,793	\$4,511	\$5,075	\$4,511	\$1,410	\$0	\$0
Morocco Transoceanic Abort Landing Site	TAL-002	MOROCCO/UTILITIES (WATER)	\$581	\$0	\$194	\$0	\$640	\$0	\$523	\$0	\$0
Remote & Low Value DM Totals by System			\$857,841	\$32,724	\$160,085	\$36,000	\$410,344	\$81,382	\$2,181	\$0	\$0
Percentage of NASA Agency Wide Total System DM			0.24%	0.01%	0.12%	0.02%	0.09%	0.04%	0.00%	0.00%	0.00%

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APPENDIX C. FACILITIES WITH AN INITIAL BOOK VALUE OF \$5,000 OR LESS

The following facilities are those with an initial book value of \$5,000 or less that were assessed but are not listed in the RPI. The purpose of this table is to show how many of these facilities there are in addition to the number of facilities on the RPI list.

Table C-1 Facilities with Initial Book Value GTE \$5000 that were Assessed but not on the RPI

Name	Fac	Description	Built	CRV	Book Value	Status	DM_Cat
Total				\$88,755.00	\$20,205.00		
Langley Research Center		FILTER PLANT BUILDING NO. 2	1964	\$28,151.00	\$4,574.00	Active	19.1
Wallops Flight Facility	W-035B	Storage Blockhouse		\$3,000.00			8
National Scientific Balloon Facility, Pa	032/1621	Administration Storage Building	2004	\$5,000.00	\$5,000.00	Active	28
Madrid Deep Space Communications Complex, Spa	600	COLLIMATION BUILDING	1965		\$4,992.00	Active	12
Table Mountain Observatory	TM-LN	Liquid Nitrogen Station				Active	13
White Sands Test Facility	T634A	JANITORIAL STORAGE BUILDING		\$5,000.00			8
Kennedy Space Center	M6-0689C	Air Compressor Storage Building		\$3,000.00			8
Marshall Space Flight Center	4683	Control Building		\$5,000.00			0
Marshall Space Flight Center	9959	STORAGE AREA	1962	\$4,579.00	\$728.00	Active	9
Marshall Space Flight Center	9960	COMPRESSOR PAD	1962	\$1,830.00	\$291.00	Active	21
Marshall Space Flight Center	9961	STILLING BASINS (2)	1962	\$3,094.00	\$492.00	Active	18.1
Marshall Space Flight Center	9962	LEACHING FIELD	1962	\$9,038.00	\$1,437.00	Active	18.1
Marshall Space Flight Center	9963	STORAGE TANK	1962	\$15,264.00	\$2,427.00	Active	10
Marshall Space Flight Center	9971	WATER LINE	1960	\$5,799.00	\$264.00	Active	17

The following facilities are those with an initial book value of \$5,000 or less that were assessed and are listed in the RPI.

Table C-2 \$5,000 Book Value on the RPI

Name	Fac	Desc	Built	CRV	Book_Val	Status	DM_Cat
Total				\$7,708,792.85	\$1,140,674.82		
Ames Research Center	N123	MATERIAL/EQUIPMENT STORAGE (JFP)	1944	\$60,390.15	\$3,451.00	Active	7
Ames Research Center	N253B	SENTRY HOUSE (GATE 18)	1965	\$32,793.78	\$5,000.00	Mothballed	24
Crows Landing	C124	FIRE PROTECTION WATER TANK	1954	\$30,243.22	\$3,280.00	Abandoned	19
Crows Landing	C135	WATER DISTRIBUTION PUMPHOUSE	1955	\$2,630.49	\$300.00	Abandoned	19.1
Crows Landing	C151	POTABLE WATER STORAGE TANK	1943	\$35,915.63	\$2,000.00	Active	19
Crows Landing	C164	SWIMMING POOL FILTER BUILDING	1960	\$27,550.47	\$3,745.00	Abandoned	24
Crows Landing	C165	BATH HOUSE	1960	\$14,713.20	\$2,000.00	Abandoned	24
Crows Landing	C175	BALLFIELD SNACK BAR	1960	\$3,678.30	\$500.00	Abandoned	25
Crows Landing	CL203	COMMUNICATION LINES	1959	\$4,877.78	\$650.00	Abandoned	16
Crows Landing	CL213	SIDEWALKS	1943	\$10,611.38	\$2,550.00	Active	21

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Crows Landing	T-167	MEDICAL TRAILER	1965	\$32,793.78	\$5,000.00	Abandoned	7
Crows Landing	T-400	FUEL FARM OFFICE TRAILER	1960	\$7,356.60	\$1,000.00	Abandoned	7
Camp Parks	CP283	GAS PIPELINE	1953	\$3,282.24	\$344.00	Active	17
Camp Parks	CP294A	FENCES-PERIMETER	1953	\$7,614.03	\$798.00	Active	25
Moffet Federal Airfield	113	NAVY EXCHANGE STORAGE	1944	\$34,998.64	\$2,000.00	Out Grant	28
Moffet Federal Airfield	118	LINE MAINTENANCE SHELTER	1944	\$46,023.21	\$2,630.00	Mothballed	28
Moffet Federal Airfield	119	LINE MAINTENANCE SHELTER	1944	\$34,858.64	\$1,992.00	Mothballed	28
Moffet Federal Airfield	129	EAST GATE SENTRY HOUSE	1966	\$14,582.99	\$2,305.00	Mothballed	24
Moffet Federal Airfield	184	MAINTENANCE STORAGE	1955	\$8,417.58	\$960.00	Active	28
Moffet Federal Airfield	021	DETACHED GARAGES	1933	\$95,973.12	\$3,454.00	Active/Heritage	24
Moffet Federal Airfield	022	DETACHED GARAGES	1933	\$95,973.12	\$3,454.00	Active/Heritage	24
Moffet Federal Airfield	024	STORAGE FACILITY	1933	\$84,386.33	\$3,037.00	Out Grant	8
Moffet Federal Airfield	027	SMALL ARMS/PYROTECHNICS MAGAZINE	1933	\$2,667.46	\$96.00	Abandoned	11
Moffet Federal Airfield	028	SMALL ARMS/PYROTECHNIC MAGAZINE	1937	\$13,155.29	\$627.00	Abandoned	11
Moffet Federal Airfield	331	AIRFIELD STORAGE	1958	\$13,551.14	\$1,730.00	Active	28
Moffet Federal Airfield	034	STORAGE	1934	\$40,064.53	\$1,627.00	Active	8
Moffet Federal Airfield	342	FUEL FARM STORAGE	1948	\$3,617.89	\$300.00	Out Grant	8
Moffet Federal Airfield	346	AIRCRAFT LINE SHELTER	1950	\$9,474.83	\$864.00	Abandoned	23
Moffet Federal Airfield	347	AIRCRAFT LINE OPERATIONS BUILDING	1942	\$74,096.22	\$4,000.00	Abandoned	23.1
Moffet Federal Airfield	348	FUEL FARM SAMPLING/TEST BUILDING	1950	\$23,599.35	\$2,152.00	Out Grant	23
Moffet Federal Airfield	350	LINE MAINTENANCE SHELTER	1950	\$9,474.83	\$864.00	Abandoned	23
Moffet Federal Airfield	351	LINE MAINTENANCE SHELTER	1950	\$9,474.83	\$864.00	Abandoned	23
Moffet Federal Airfield	359	GOLF COURSE GROUNDS MAINTENANCE SHOP	1956	\$33,501.75	\$4,000.00	Out Grant	28
Moffet Federal Airfield	036	SENTRY HOUSE/MAIN GATE	1934	\$12,952.64	\$526.00	Active	24
Moffet Federal Airfield	367	FLIGHTLINE DENTAL OFFICE	1948	\$21,104.38	\$1,750.00	Mothballed	5
Moffet Federal Airfield	037	SCALE HOUSE	1933	\$53,182.56	\$1,914.00	Active/Heritage	25
Moffet Federal Airfield	372	FUEL LOADING RACK RESTROOM	1952	\$3,163.34	\$320.00	Out Grant	24
Moffet Federal Airfield	038	TENNIS COURTS	1936	\$22,617.87	\$946.00	Active	25
Moffet Federal Airfield	380	BUS/PERSONNEL SHELTER	1957	\$2,827.74	\$350.00	Active	25
Moffet Federal Airfield	382	AIRCRAFT LINE OPERATIONS FACILITY	1950	\$9,474.83	\$864.00	Active	12
Moffet Federal Airfield	390	FUEL PARTS STORAGE	1948	\$10,419.54	\$864.00	Out Grant	8
Moffet Federal Airfield	399	COVERED STORAGE GOLF COURSE LANDSCAPING EQUIPMENT	1956	\$39,113.29	\$4,670.00	Out Grant	9
Moffet Federal Airfield	040	FLAGPOLE	1933	\$12,142.52	\$437.00	Active	25
Moffet Federal Airfield	400	AIR OPERATIONS	1958	\$8,772.99	\$1,120.00	Active	28

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
		STORAGE					
Moffet Federal Airfield	402	BUS/PERSONNEL SHELTER	1957	\$2,827.74	\$350.00	Active	25
Moffet Federal Airfield	044	STORAGE FACILITY	1942	\$68,576.05	\$3,702.00	Mothballed	8
Moffet Federal Airfield	445	SMALL CRAFT BERTHING	1957	\$24,237.76	\$3,000.00	Mothballed	25
Moffet Federal Airfield	459	RECREATION STORAGE	1950	\$13,817.46	\$1,260.00	Active	8
Moffet Federal Airfield	464	OPERATIONAL STORAGE	1940	\$19,447.52	\$960.00	Active	8
Moffet Federal Airfield	468	AVIATION METEOROLOGICAL FACILITY	1961	\$5,430.03	\$750.00	Active	13
Moffet Federal Airfield	469	AVIATION METEOROLOGICAL FACILITY	1961	\$5,430.03	\$750.00	Active	13
Moffet Federal Airfield	470	PUBLIC WORKS STORAGE	1933	\$61,129.38	\$2,200.00	Mothballed	8
Moffet Federal Airfield	472	AIRFRAMES SHOP	1961	\$18,100.09	\$2,500.00	Mothballed	23
Moffet Federal Airfield	482	PUBLIC WORKS STORAGE FACILITY	1963	\$30,420.24	\$4,394.00	Active	9
Moffet Federal Airfield	050	RADIO STATION FACILITY	1958	\$30,024.00	\$3,833.00	Active	12
Moffet Federal Airfield	502	GOLF COURSE RESTROOMS	1967	\$15,208.36	\$2,500.00	Out Grant	24
Moffet Federal Airfield	527	MAINTENANCE STORAGE SHED	1968	\$17,966.53	\$3,150.00	Active	8
Moffet Federal Airfield	533	CHASE PARK RESTROOMS	1971	\$19,520.60	\$4,500.00	Active	24
Moffet Federal Airfield	534	BBQ SHELTER	1971	\$13,013.73	\$3,000.00	Active	24
Moffet Federal Airfield	537	GOLF COURSE RESTROOMS	1973	\$5,637.30	\$1,560.00	Out Grant	24
Moffet Federal Airfield	570	PUBLIC WORKS MAINTENANCE STORAGE	1978	\$4,913.19	\$2,000.00	Active	23
Moffet Federal Airfield	574	STORAGE WAREHOUSE B	1982	\$3,681.59	\$2,000.00	Out Grant	8
Moffet Federal Airfield	581	THEATER MARQUEE	1982	\$2,004.63	\$1,089.00	Active	25
Moffet Federal Airfield	582	ELLIS GATE MARQUEE	1982	\$2,004.63	\$1,089.00	Active	25
Moffet Federal Airfield	657	WAREHOUSE F	1955	\$19,290.29	\$2,200.00	Out Grant	28
Moffet Federal Airfield	658	WAREHOUSE F	1955	\$19,290.29	\$2,200.00	Out Grant	28
Moffet Federal Airfield	659	WAREHOUSE G	1956	\$40,202.10	\$4,800.00	Out Grant	8
Moffet Federal Airfield	660	WAREHOUSE H	1956	\$40,202.10	\$4,800.00	Out Grant	8
Moffet Federal Airfield	661	WAREHOUSE I	1955	\$19,290.29	\$2,200.00	Out Grant	28
Moffet Federal Airfield	070	FUSE & DETONATOR MAGAZINE	1943	\$12,983.50	\$723.00	Out Grant	11
Moffet Federal Airfield	076	LOCKSMITH SHOP	1944	\$31,673.77	\$1,810.00	Active	23
Moffet Federal Airfield	077	SOUTH GATE SENTRY HOUSE	1944	\$29,311.36	\$1,675.00	Active	24
Moffet Federal Airfield	780	TELEPHONE REMOTE SWITCH	1989	\$4,683.76	\$3,000.00	Active	12
Moffet Federal Airfield	079	GENERAL WAREHOUSE	1944	\$48,630.61	\$2,779.00	Mothballed	8
Moffet Federal Airfield	081	GENERAL STORAGE	1944	\$30,413.82	\$1,738.00	Active	28
Moffet Federal Airfield	082	GENERAL/ATHLETIC STORAGE	1944	\$40,598.42	\$2,320.00	Active	28
Moffet Federal Airfield	083	LINE OPERATIONS BUILDING	1944	\$87,496.60	\$5,000.00	Mothballed	23
Moffet Federal Airfield	085	GENERAL STORAGE	1944	\$52,060.47	\$2,975.00	Mothballed	28
Moffet Federal Airfield	942	NAVY EXCHANGE MAINTENANCE SHOP	1940	\$100,215.50	\$4,947.00	Mothballed	23

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Moffet Federal Airfield	949	READY ISSUE MAGAZINE	1956	\$40,202.10	\$4,800.00	Active	11
Moffet Federal Airfield	958	COVERED STORAGE	1956	\$16,709.00	\$1,995.00	Out Grant	9
Moffet Federal Airfield	964	BASKETBALL COURT	1942	\$55,572.16	\$3,000.00	Active	25
Moffet Federal Airfield	965	VOLLEYBALL COURTS	1942	\$55,572.16	\$3,000.00	Active	25
Dryden Flight Research Center	4804	STOREHOUSE (PAINT,OIL & THINNER)	1955	\$26,304.95	\$3,000.00	Active	9
Dryden Flight Research Center	4816	GUARD POST NO. 3	1971	\$2,054.12	\$566.66	Mothballed	24
Dryden Flight Research Center	4818	GUARD POST NO. 6	1971	\$2,168.96	\$500.00	Active	24
Dryden Flight Research Center	4829	GUARD POST NO. 12(SHUTTLE)	1983	\$5,254.81	\$3,088.66	Active	24
Dryden Flight Research Center	4836	CODE O EXPEDITER' S OFFICE	2003	\$4,453.55	\$4,000.00	Active	24
Dryden Flight Research Center	4868	ENTRY CONTROL BUILDING	1983	\$4,829.93	\$2,800.00	Active	24
Dryden Flight Research Center	4869	GATE HOUSE	1999	\$3,332.16	\$2,800.00	Standby	24
Dryden Flight Research Center	4871	GUARD POST NO. 13	1978	\$11,005.55	\$4,480.00	Active	24
Dryden Flight Research Center	4879	PERSONNEL HOUSING	1999	\$4,772.73	\$4,010.50	Active	29
Dryden Flight Research Center	4983	WATER PUMP STATION (CATSITE)	1964	\$13,304.63	\$1,980.00	Active	28
Dryden Flight Research Center	NB015	FLAME DEFLECTORS	1954	\$31,558.50	\$4,000.00	Active	18.2
Dryden Flight Research Center	NB002	SHOULDER, TAXIWAY OIL	1954	\$9,220.49	\$1,000.00	Active	21
Dryden Flight Research Center	NB032	SEPTIC TANK & DRAIN FIELD	1968	\$11,407.32	\$2,000.00	Active	18.1
Dryden Flight Research Center	NB033	SEPTIC TANK & DRAIN FIELD	1969	\$10,410.99	\$2,000.00	Active	18.1
Dryden Flight Research Center	NB035	SANITARY SEWER (3 Inch)	1964	\$5,711.58	\$850.00	Active	18
Dryden Flight Research Center	NB053	BUS LOADING AREA	1967	\$5,815.68	\$956.00	Active	21
Dryden Flight Research Center	NB066	EVAPORATION POND	1959	\$15,988.34	\$2,341.00	Active	18.2
Dryden Flight Research Center	NB008	CATSITE DIESEL FUEL TANK	1974	\$1,586.92	\$465.00	Active	10
Dryden Flight Research Center	4878	PORTABLE GUARD SHACK	2004	\$2,890.17	\$2,800.00	Active	24
Dryden Flight Research Center	T-72	TRAILER M.S.B.L.S. (RUNWAY 22)	1994	\$4,759.32	\$3,600.00	Active	7
Dryden Flight Research Center	T-49	OFFICE TRAILER	2002	\$5,741.28	\$5,000.00	Active	7
Glenn Research Center	0141	FLIGHT RESEARCH DRUM STORAGE BLDG.	1971	\$6,506.87	\$1,500.00	Active	9
Glenn Research Center	0310	ANTENNA ALIGNMENT TOWER	1971	\$1,301.37	\$300.00	Active	13
Glenn Research Center	0318	RECREATION SERVICES BUILDING	1958		\$1,500.00		0
Glenn Research Center	3930	DISPOSAL AREA	1966	\$12,653.35	\$2,000.00	Active	25
Plum Brook Station	1193	REACTOR RADAR & WEATHER TOWER HOUSE	1961	\$5,567.42	\$915.00	In-Active	1
Plum Brook Station	1432	SPF LN2 SERVICE BUILDING	1967	\$9,483.03	\$1,660.00	Active	24
Plum Brook Station	1433	SPF BOTTLE STORAGE BUILDING	1968	\$14,134.25	\$2,570.00	Active	9
Plum Brook Station	5335	LH2 STORAGE DEWAR CONTROL BUILDING	1965	\$255,053.43	\$4,000.00	In-Active	24

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Plum Brook Station	7132	VEHICLE SERVICE STATION BUILDING	1967	\$4,069.76	\$669.00	Active	24
Plum Brook Station	7198	COMFORT STATION - RECREATION AREA	1964		\$1,350.00		0
Plum Brook Station	8335	SEWAGE LIFT STATION (REACTOR)	1943	\$12,283.15	\$684.00	Active	18
Plum Brook Station	8431	GAS METER HOUSE (ADMIN. AREA)	1961	\$4,633.62	\$640.00	Active	24
Plum Brook Station	8432	GAS METER HOUSE (REACTOR AREA)	1959	\$19,060.85	\$2,540.00	Active	24
Plum Brook Station	8433	GAS METER HOUSE (MAINTENANCE AREA)	1960	\$7,503.73	\$1,020.00	Active	24
Plum Brook Station	8434	GAS METER HOUSE (ROCKET AREA)	1960	\$7,503.73	\$1,020.00	Active	24
Plum Brook Station	8435	GAS METER HOUSE (SPACE PROP. AREA)	1964	\$10,348.05	\$1,540.00	Active	24
Langley Research Center	1209T1	SECURITY SYS MAINT SUPPORT (T109)	1963	\$23,504.03	\$3,395.00	Active	7
Langley Research Center	1224T1	A76 Team - Trailer 1 (T120)	1965	\$728,975.23	\$5,000.00	Active	7
Langley Research Center	1244T3	FLIGHT INSTR SUPP - RMS 300 (T140)	1994	\$5,949.15	\$4,500.00	Active	7
Langley Research Center	1250T1	ATMOSPH SCI CONTR FAC-RMS 100 (T142)	1972	\$19,031.34	\$4,850.00	Active	7
Langley Research Center	1261A	FILTER PLANT BUILDING NO. 2	1964	\$30,735.04	\$4,574.00	Active	19.1
Langley Research Center	1265T1	8' HIGH TEMP TUN SUPP FAC (T147)	1994	\$5,949.15	\$4,500.00	Active	7
Langley Research Center	1265T2	8'HIGH TEMP TUN SUPP FAC (T148)	1994	\$5,949.15	\$4,500.00	Active	7
Langley Research Center	1291	PUMP STATION	1961	\$7,240.04	\$1,000.00	Active	18
Langley Research Center	1297B	EXTERNAL AFFAIRS STORAGE FACILITY	1970	\$19,504.10	\$3,965.00	Active	8
Langley Research Center	1298T2	HYPER-X OFFICES - RMS 200 (T153)	1993	\$5,147.51	\$3,750.00	Active	7
Langley Research Center	1298T3	HYPER-X OFFICES - RMS 300 (T154)	1993	\$5,147.51	\$3,750.00	Active	7
Langley Research Center	1298T4	PROCUREMENT - RMS 400 (T155)	1994	\$5,949.15	\$4,500.00	Active	7
Goddard Space Flight Center	209	B-NORTH 20' BLDG/OTS	1967	\$19,755.56	\$4,169.00	Active	1
Goddard Space Flight Center	947	B-TRAILER/FLYING CLUB/T2N-21	1968		\$2,118.00		0
Goddard Space Flight Center	954	S-CONCRETE PAD/PROPAGATION SITE	1977		\$3,542.00		21
Ascension Bilateral Ranging Transponder Facility	999	BRT FACILITY	1982	\$6,995.03	\$3,800.00	Active	13
Easter Island Mobile Laser Site	999	COMMUNICATIONS	1985	\$1,769.93	\$1,045.00	Active	13
Hawaii Spaceflight Tracking/Data Network	004	TECHNOLOGICAL LIBRARY BUILDING	1969	\$5,205.49	\$1,000.00	Active	6
Hawaii Spaceflight Tracking/Data Network	005	FLAMMABLE STORAGE BUILDING	1969	\$26,027.47	\$5,000.00	Active	8
Hawaii Spaceflight Tracking/Data Network	012	FLAMMABLE STORAGE BUILDING	1972	\$10,398.57	\$2,650.00	Active	8
Hawaii Spaceflight Tracking/Data Network	019	SANITARY FACILITY BUILDING	1965	\$6,558.76	\$1,000.00	Active	24
Hawaii Spaceflight Tracking/Data Network	020	COVERED STORAGE BUILDING	1978	\$12,282.97	\$5,000.00	Active	8
Hawaii Spaceflight Tracking/Data Network	022	SUPPLY/STORAGE BUILDING	1963	\$12,461.64	\$1,800.00	Active	8
Hawaii Spaceflight Tracking/Data Network	024	SECURITY BUILDING	1966	\$6,326.68	\$1,000.00	Active	24

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Wallops Flight Facility	A-028	AFLD.MLS LDG. 2.4KV SUB#2	1974		\$3,414.00		0
Wallops Flight Facility	A-029	AFLD MLS LDG 2.4KV SUB #3	1974		\$3,414.00		0
Wallops Flight Facility	A-031	AFLD MLS LDG 2.4KV SUB #4	1974		\$3,414.00		0
Wallops Flight Facility	A-041A	RADAR PROPERTY STORAGE FAC	1988	\$7,308.19	\$4,617.00	Active	28
Wallops Flight Facility	B-130	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	C-016	ULDB BALLOON CRAFT STORAGE BUILDING	1988	\$7,490.09	\$4,617.00	Active	24
Wallops Flight Facility	D-008B	550G A/G FUEL OIL STORAGE TANK	1990	\$4,261.49	\$2,800.00	Active	10
Wallops Flight Facility	D-012I	STP OUTFALL	1944	\$8,784.66	\$502.00	Abandoned	18.1
Wallops Flight Facility	D-036	FUELING HYDRANT	1982	\$4,031.34	\$2,190.00	Active	10.2
Wallops Flight Facility	D-098A	STP SLUDGE DRYING BED	1954	\$32,483.80	\$3,523.00	Active	18.1
Wallops Flight Facility	E-007A	25 TON AIR COOLED CONDEN.	1973	\$11,173.42	\$3,092.00	Active	17.1
Wallops Flight Facility	E-134A	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	F-005A	PKG AIRCOOLED WATER CHILLER UNIT	1978	\$10,789.37	\$4,392.00	Active	17.1
Wallops Flight Facility	F-008A	SUBSTATION	1979	\$9,270.27	\$4,124.00	Active	16.2
Wallops Flight Facility	F-010A	TOOL & EQUIP STOREHOUSE	1947	\$36,787.71	\$2,800.00	Active	8
Wallops Flight Facility	F-017	AUTO PARTS STORAGE FACILITY	1966	\$27,320.29	\$4,325.00	Active	9
Wallops Flight Facility	F-027	PAPER SHREDDER FACILITY	1947	\$42,227.53	\$4,994.00	Abandoned	24
Wallops Flight Facility	F-030	WEMA RECREATION FACILITY	1950	\$26,318.98	\$2,400.00	Abandoned	24
Wallops Flight Facility	F-036	WEMA STORAGE BLDG - WFF	1952	\$8,263.43	\$1,002.00	Active	8
Wallops Flight Facility	F-163	CAL LAB BULK STOR BLDG	1963	\$21,198.63	\$3,062.00	Active	9
Wallops Flight Facility	F-170	POMB STORAGE BUILDING	1957	\$19,228.62	\$2,380.00	Active	23
Wallops Flight Facility	F-172	ACS PRESSURE VESSELL TESTING MAG	1955	\$8,027.50	\$1,005.00	Active	9
Wallops Flight Facility	F-211	AUTO PARTS STORAGE FACILITY	1958	\$16,567.27	\$3,175.00	Abandoned	9
Wallops Flight Facility	H-023	WATER PUMP HOUSE	1948	\$34,915.80	\$4,175.00	Abandoned	19.1
Wallops Flight Facility	H-114	WATER PUMP HOUSE	1954	\$18,440.99	\$2,000.00	Abandoned	19.1
Wallops Flight Facility	I-0007	COMSEC SECURITY FENCING & GATES	1983	\$8,153.96	\$4,727.00	Active	25
Wallops Flight Facility	I-0009	COMMUNICATIONS U/G CABLE (FPQ-6)	1963	\$10,147.71	\$1,483.00	Active	16
Wallops Flight Facility	I-0021	NSWC MK86 RADAR TWR FOUNDATION SLAB	1981	\$3,971.14	\$2,025.00	Active	21
Wallops Flight Facility	I-0030	VEHICULAR PKG AREAS CONC - ML	1962	\$21,962.87	\$3,436.00	Active	21
Wallops Flight Facility	I-0034	SEPTIC TANK & DRAINFIELD SYSTEM	1960	\$26,231.34	\$3,323.00	Active	18.1
Wallops Flight Facility	I-0036	SIDEWALKS -CONCRETE - ML	1962	\$14,870.59	\$4,602.00	Active	21
Wallops Flight Facility	I-0044	WATER WELL NO. 1 WALLOPS MAINLAND	1964	\$15,292.53	\$2,288.00	Active	19
Wallops Flight Facility	I-0045	WATER WELL NO. 2 - MAINLAND	1964	\$15,292.53	\$2,288.00	Active	19
Wallops Flight Facility	I-0053	TRAFFIC WARNING SIGNS (PED & VEH)	1966	\$6,953.02	\$1,099.00	Active	25

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Wallops Flight Facility	I-0067	SEWAGE/SEPTIC TANK DRAINFIELD	1983	\$3,424.08	\$1,985.00	Active	18.1
Wallops Flight Facility	I-0074	AREA IDENT SIGN/LCH GATE MAIN ENTR	1962	\$7,643.77	\$1,324.00	Active	25
Wallops Flight Facility	I-0118	FPQ-6 ANTENNA SSY SERVICE PAVEMENT	1966	\$11,293.12	\$1,785.00	Active	21
Wallops Flight Facility	I-0119	ISLAND RADAR VAN PARKING PAD	1969	\$18,115.12	\$3,480.00	Active	21
Wallops Flight Facility	I-0151	SPANDAR ANTENNA ASSY SERV PAVEMENT	1960	\$4,382.16	\$1,191.00	Active	21
Wallops Flight Facility	I-0154	CABLE HOUSE (M/H NO. 65) TERMINAL	1967	\$15,208.36	\$2,500.00	Active	16
Wallops Flight Facility	J-018	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	M-005	UNDERGROUND MAGAZINE	1945	\$68,825.77	\$4,000.00	Abandoned	11
Wallops Flight Facility	M-006	UNDERGROUND MAGAZINE	1945	\$34,412.89	\$2,000.00	Abandoned	11
Wallops Flight Facility	M-016A	34.6 TON COOLING TOWER	1967	\$16,523.05	\$2,868.00	Active	17.1
Wallops Flight Facility	M-017A	1000G A/B FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	M-018	ROCKET VEHICLE SHELTER	1963	\$22,684.01	\$3,280.00	Active	9
Wallops Flight Facility	M-019A	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	M-021A	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	M-023	TELEPHONE CABLE HUT	1969	\$8,249.02	\$1,596.00	Abandoned	12
Wallops Flight Facility	M-025	READY ISSUE MAGAZINE	1957	\$7,828.34	\$1,056.00	Active	11
Wallops Flight Facility	M-183	READY SERVICE MAGAZINE	1957	\$23,441.15	\$4,806.00	Active	11
Wallops Flight Facility	M-184	READY ISSUE STOR MAGAZINE	1958	\$12,057.90	\$1,727.00	Active	11
Wallops Flight Facility	N-162A	VHF/UHF ANTENNA TOWER	1982	\$7,891.50	\$4,287.00	Active	13
Wallops Flight Facility	N-166	FLAMMABLE STOREHOUSE	1957	\$20,375.88	\$2,522.00	Active	9
Wallops Flight Facility	N-167B	12.5 TON AIR COOLED COND	1965		\$3,014.00		17.1
Wallops Flight Facility	N-174A	TELEMETRY ELEC EQUIP SHELTER	1968	\$12,792.11	\$3,524.00	Active	9
Wallops Flight Facility	N-180	FLAMMABLE MATL STOR CUBICAL - WFF	1969	\$12,144.42	\$2,333.00	Active	9
Wallops Flight Facility	N-218	FLAMMABLES STOREHOUSE	1958	\$7,200.02	\$1,006.00	Active	9
Wallops Flight Facility	N-224	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	S-0033	PARKING AREA CONCRETE	1947	\$131,507.99	\$3,500.00	Active	21
Wallops Flight Facility	S-0050	COMM EQUIP (PAVED)	1967	\$11,667.85	\$1,918.00	Active	21
Wallops Flight Facility	S-0067	MOTOR VHCL R/W TRAFFIC SIGNAL SYS	1969	\$18,132.03	\$4,339.00	Active	15
Wallops Flight Facility	S-0083	RFI WARNING LIGHT & CABLING	1970	\$9,611.69	\$1,990.00	Active	16
Wallops Flight Facility	S-0089	LAND VEHICLE FUEL DISPENSING	1981	\$9,489.56	\$4,839.00	Active	10.2
Wallops Flight Facility	S-0146	40' ALUM FLAG POLE (VIC)	1981	\$4,135.14	\$2,151.00	Active	25
Wallops Flight Facility	S-0153	ADAS FLOODLIGHT SYSTEM	1969	\$20,542.06	\$4,272.00	Active	15
Wallops Flight Facility	S-0155	VIC CONCRETE (TKG STA ANT) PEDESTAL	1982	\$3,230.60	\$1,755.00	Active	25

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Wallops Flight Facility	S-0164	ORG STOR OPEN - PAVED (TELECOMM)	1961	\$27,714.85	\$3,828.00	Active	9
Wallops Flight Facility	S-0168	LOADING/UNLOADING CONC SVC RAMP	1983	\$5,174.92	\$3,000.00	Active	21
Wallops Flight Facility	T-009	TRAILER/TRAVEL W/UNDERCARRIAGE	1972	\$10,398.57	\$2,650.00	Active	7
Wallops Flight Facility	U-020B	ELECT POWER CNTRL BLDG	1959	\$19,135.89	\$2,550.00	Active	16.1
Wallops Flight Facility	U-020C	MOBILE RADAR SPARE PARTS STOR BLDG	1990	\$7,001.02	\$4,600.00	Active	8
Wallops Flight Facility	U-025C	RARF FLAMMABLES STORAGE BLDG	1989	\$7,419.07	\$4,752.00	Mothballed	28
Wallops Flight Facility	U-026	PROJECTS MAINTENANCE SHOP	1961	\$35,199.99	\$4,893.00	Mothballed	23
Wallops Flight Facility	U-053	OUTDOOR ELECT SUBSTATION	1964	\$11,155.54	\$1,669.00	Active	16.2
Wallops Flight Facility	U-055B	UHF/VHF ANT COM SUPT STRUCT	1981	\$7,846.20	\$4,001.00	Active	13
Wallops Flight Facility	U-060A	BORESIGHT EQUIP SHELTER	1968	\$23,064.95	\$4,303.00	Active	25
Wallops Flight Facility	U-064	COMM ANTENNA SUPPORT TWR	1965	\$6,558.76	\$1,000.00	Active	13
Wallops Flight Facility	U-071	COMPRESS DEHYDRATOR BLDG	1977	\$12,132.07	\$4,558.00	Active	25
Wallops Flight Facility	U-072	AN/FPQ 6 RADAR SPT STOR BLDG - ML	1990	\$6,739.25	\$4,428.00	Active	8
Wallops Flight Facility	V-042	READY SERVICE MAGAZINE	1956	\$7,668.42	\$1,000.00	Standby	11
Wallops Flight Facility	V-052	READY SVC CHML STOR MAG	1956	\$7,668.42	\$1,000.00	Standby	11
Wallops Flight Facility	V-081	OUTDOOR ELECT SUBSTATION	1963	\$13,995.33	\$2,571.00	Standby	16.2
Wallops Flight Facility	W-016	READY STORAGE CUBICAL	1957	\$12,688.35	\$1,778.00	Active	11
Wallops Flight Facility	W-051	FLAMMABLES STOREHOUSE	1956	\$7,668.42	\$1,000.00	Active	9
Wallops Flight Facility	W-067	READY ISSUE EXPLO STOR CUBICAL	1957	\$12,688.35	\$1,778.00	Mothballed	11
Wallops Flight Facility	W-105	WINCH SHELTER (PAD 3A)	1963	\$14,290.83	\$2,125.00	Mothballed	24
Wallops Flight Facility	W-110	GUARD HOUSE (PAD 3A)	1963	\$14,834.38	\$2,205.00	Mothballed	24
Wallops Flight Facility	X-005A	PTH FINDER RADAR ANT TWR	1965	\$9,549.55	\$1,456.00	Active	13
Wallops Flight Facility	X-007	RADAR ELECT EQUIP SHELTER	1974	\$8,313.41	\$2,436.00	Active	9
Wallops Flight Facility	X-036	STORAGE SHED	1967	\$16,790.03	\$2,760.00	Active	9
Wallops Flight Facility	X-053	STORM DRAINAGE PUMP STA	1982	\$2,812.74	\$1,528.00	Active	18.1
Wallops Flight Facility	Y-016	READY SERVICE MAGAZINE	1957	\$19,228.62	\$2,380.00	Active	11
Wallops Flight Facility	Y-020	READY ISSUE STORAGE MAGAZINE	1957	\$14,364.91	\$1,778.00	Active	9
Wallops Flight Facility	Y-036	FIRING CUBICAL	1956	\$7,429.01	\$887.00	Abandoned	16
Wallops Flight Facility	Y-037	FIRING CUBICAL	1956	\$5,276.53	\$630.00	Abandoned	16
Wallops Flight Facility	Y-037A	LAUNCH COMPLEX FIRE CUBICAL 2	1965	\$6,558.76	\$1,000.00	Abandoned	16
Wallops Flight Facility	Y-038	LAUNCHER EQUIP SHELTER	1965	\$18,246.46	\$2,782.00	Active	24
Wallops Flight Facility	Y-038A	LAUNCH COMPLEX FIRE CNTL SHELTER	1956	\$7,429.01	\$887.00	Active	16
Wallops Flight Facility	Y-046	STORM DRAINAGE PUMP STATION	1983	\$6,836.08	\$3,963.00	Active	18.1
Wallops Flight Facility	Y-047	STORM DRAINAGE	1964	\$26,629.42	\$3,963.00	Active	18

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
		PUMP STATION					
Wallops Flight Facility	Y-060A	1000G A/G FUEL OIL STORAGE TANK	1990	\$5,326.87	\$3,500.00	Active	10
Wallops Flight Facility	Y-062	45 KVA TRANSFORMER - PAD MOUNTED	1992	\$4,765.32	\$3,284.00	Active	16.2
Wallops Flight Facility	Y-067	SUPPORT CUBICAL	1969	\$12,144.42	\$2,333.00	Active	25
Wallops Flight Facility	Z-026	45 KVA TRANSFORMER - PAD MOUNTED	1992	\$4,765.32	\$3,284.00	Active	16.2
Wallops Flight Facility	Z-043	ELEC POWER INTERFACE FACILITY	1957	\$7,578.34	\$938.00	Active	16
Wallops Flight Facility	Z-045	COMMUNICATIONS INTERFACE BLDG	1966	\$15,103.97	\$2,444.00	Active	24
Wallops Flight Facility	Z-053	45 KVA TRANSFORMER - PAD MOUNTED	1992	\$4,765.32	\$3,284.00	Active	16.2
Jet Propulsion Laboratory	143	SOLID ROCKET DOCK	1955	\$11,486.97	\$1,260.00	Active	9
Jet Propulsion Laboratory	145	MAGIZINE - PROPELLANT	1953	\$29,549.69	\$3,097.00	Active	11
Jet Propulsion Laboratory	195	GUARD SHELTER	1960	\$7,776.63	\$1,032.00	Active	24
Jet Propulsion Laboratory	220	ICS TERMINAL	1964	\$28,672.15	\$4,267.00	Active	12
Jet Propulsion Laboratory	225	GUARD SHELTER	1961	\$7,428.28	\$1,026.00	Active	24
Jet Propulsion Laboratory	226	SOLVENT STORAGE	1962	\$19,441.44	\$2,742.00	Active	9
Jet Propulsion Laboratory	237	COOLING TOWER	1962	\$35,407.19	\$2,800.00	Active	17.1
Jet Propulsion Laboratory	262	RADIOMETER	1968	\$5,703.66	\$1,000.00	Active	1
Jet Propulsion Laboratory	87	PROPELLANT CONDITIONING LABORATORY	1948	\$44,333.78	\$2,975.00	Active	1
Jet Propulsion Laboratory	T1021	Trailer	1970	\$10,974.44	\$2,231.00	Active	7
Jet Propulsion Laboratory	T1028	Trailer	1997	\$2,811.30	\$2,300.00	Active	7
Jet Propulsion Laboratory	T1044	Trailer	1997	\$2,371.27	\$1,940.00	Active	7
Jet Propulsion Laboratory	T1054	Trailer	1997	\$2,321.15	\$1,899.00	Active	7
Jet Propulsion Laboratory	T1058	Trailer	1970	\$9,341.31	\$1,899.00	Active	7
Jet Propulsion Laboratory	T1063	Trailer	1970	\$10,408.75	\$2,116.00	Active	7
Jet Propulsion Laboratory	T1074	Trailer	1970	\$9,306.87	\$1,892.00	Active	7
Jet Propulsion Laboratory	T1076	Trailer	1970	\$9,439.69	\$1,919.00	Active	7
Jet Propulsion Laboratory	T1079	Trailer	1970	\$12,087.03	\$4,062.00	Active	7
Jet Propulsion Laboratory	T1081	Trailer	1970	\$7,014.59	\$1,426.00	Active	7
Jet Propulsion Laboratory	T1082	Trailer	1970	\$7,014.59	\$1,426.00	Active	7
Jet Propulsion Laboratory	T1086	Trailer	1970	\$6,930.97	\$1,409.00	Active	7
Jet Propulsion Laboratory	T1089	Trailer	1970	\$8,259.11	\$1,679.00	Active	7
Jet Propulsion Laboratory	T1102	Trailer	1970	\$6,193.11	\$1,259.00	Active	7
Jet Propulsion Laboratory	T1128	Trailer	1970	\$6,862.10	\$1,395.00	Active	7
Jet Propulsion Laboratory	T1129	Trailer	1970	\$7,560.61	\$1,537.00	Active	7
Jet Propulsion Laboratory	T1132	Trailer	1970	\$6,680.09	\$1,358.00	Active	7
Jet Propulsion Laboratory	T1143	Trailer	1970	\$8,406.69	\$1,709.00	Active	7
Jet Propulsion Laboratory	T1152	Trailer	1970	\$8,308.30	\$1,689.00	Active	7
Jet Propulsion Laboratory	T1153	Trailer	1970	\$8,308.30	\$1,689.00	Active	7
Jet Propulsion Laboratory	T1167	Trailer	1970	\$8,308.30	\$1,689.00	Active	7
Jet Propulsion Laboratory	T1168	Trailer	1970	\$8,485.39	\$1,725.00	Active	7
Jet Propulsion Laboratory	T1170	Trailer	1970	\$8,308.30	\$1,689.00	Active	7
Jet Propulsion Laboratory	T1182	Trailer	1970	\$8,569.01	\$1,742.00	Active	7
Jet Propulsion Laboratory	T1194	Trailer	1970	\$9,626.61	\$1,957.00	Active	7
Jet Propulsion Laboratory	T1201	Trailer	1970	\$8,308.30	\$1,689.00	Active	7

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Jet Propulsion Laboratory	T1213	Trailer	1970	\$8,308.30	\$1,689.00	Active	7
Jet Propulsion Laboratory	T1215	Trailer	1970	\$11,884.47	\$2,416.00	Active	7
Jet Propulsion Laboratory	T1300	Trailer	1970	\$20,143.58	\$4,095.00	Active	7
Jet Propulsion Laboratory	T1301	Trailer	1970	\$10,728.49	\$2,181.00	Active	7
Jet Propulsion Laboratory	T1304	Trailer	1970	\$13,871.77	\$2,820.00	Active	7
Canberra Deep Space Communications Complex, Australia	010	RIVER PUMP CONTROL BLDG	1964	\$14,749.32	\$2,195.00	Active	19.1
Canberra Deep Space Communications Complex, Australia	021	FACILITY STORES	1967	\$23,846.71	\$3,920.00	Active	8
Canberra Deep Space Communications Complex, Australia	036	Sub Reflector Shelter	1989	\$3,747.01	\$2,400.00	Active	25
Canberra Deep Space Communications Complex, Australia	044	Carport (Canteen, Visitors Center)	1993	\$2,743.97	\$1,999.00	Active	25
Canberra Deep Space Communications Complex, Australia	006	SAFETY TECHNICIAN WORKSHOP	1964	\$14,749.32	\$2,195.00	Active	23
Canberra Deep Space Communications Complex, Australia	ST19	S-BAND ACK AND COLLIMATION TOWER	1984	\$2,467.06	\$1,450.00	Active	13
Canberra Deep Space Communications Complex, Australia	ST4	COLLIMATION TOWER	1964	\$16,798.77	\$2,500.00	Active	13
Goldstone, Deep Space Communications Complex ,CA	G-208(A-8)	9 METER ANT. COLLIMATION TOWER	1972	\$9,472.51	\$2,414.00	Mothballed	13
Goldstone, Deep Space Communications Complex ,CA	G-40	FLAMMABLE STORAGE	1968	\$14,259.15	\$2,500.00	Active	9
Goldstone, Deep Space Communications Complex ,CA	G-44	STORAGE/DOCK	1970	\$19,366.37	\$3,937.00	Active	9
Goldstone, Deep Space Communications Complex ,CA	G-56	UTILITY BLDG.	1964	\$34,835.47	\$4,926.00	Active	23
Goldstone, Deep Space Communications Complex ,CA	G-87	UTILITY BLDG.	1968	\$17,908.47	\$3,000.00	Mothballed	23
Goldstone, Deep Space Communications Complex ,CA	G-93	COMPLEX SECURITY BLDG	1968	\$15,970.25	\$2,800.00	Active	24
Goldstone, Deep Space Communications Complex ,CA	M-12	ATS L-BAND BUILDING (MBS)	1970	\$12,297.67	\$2,500.00	Mothballed	12
Goldstone, Deep Space Communications Complex ,CA	M-13	TGS L-BAND BUILDING (VLBI) (MBS)	1970	\$12,297.67	\$2,500.00	Mothballed	12
Goldstone, Deep Space Communications Complex ,CA	997	UTILITIES	1970	\$7,378.60	\$1,500.00	Mothballed	13
Madrid Deep Space Communications Complex, Spain	600	COLLIMATION BUILDING	1965		\$4,992.00	Active	0
Madrid Deep Space Communications Complex, Spain	MF-0013	Monument	1973		\$1,503.00	Active	0
Madrid Deep Space Communications Complex, Spain	3100	Facilities Area	2003	\$5,185.04	\$4,657.00	Active	9
Johnson Space Center	032K	GAS CYLINDER STORAGE SHED	1966	\$26,255.71	\$4,150.00	Active	9

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
		(ARGON, NITROGEN, OXYGEN					
Johnson Space Center	037B	VAPORIZER EQUIPMENT BUILDING	1971	\$2,928.09	\$675.00	Active	24
Johnson Space Center	207S	WIND DIRECTION INDICATOR	1994	\$3,967.42	\$3,001.00	Active	25
Johnson Space Center	207T	WIND DIRECTION INDICATOR	1994	\$3,967.42	\$3,001.00	Active	25
Johnson Space Center	222C	HIGH PRESSURE GAS OPERATOR STATION	1972	\$10,426.04	\$2,657.00	Active	17.1
Johnson Space Center	222K	FIRE PROTECTION BUILDING	1974	\$1,706.37	\$500.00	Active	24
Johnson Space Center	322D	WIND DIRECTION INDICATOR	1984	\$5,276.11	\$3,101.00	Active	25
Johnson Space Center	350E	WIND DIRECTION INDICATOR	1984	\$5,354.38	\$3,147.00	Active	25
Johnson Space Center	351N	WIND DIRECTION INDICATOR	1994	\$3,967.42	\$3,001.00	Active	25
Johnson Space Center	352A	PYROTECHNICS TEST CELLS	1964	\$33,597.55	\$5,000.00	Active	1
Johnson Space Center	352J	WIND DIRECTION INDICATOR	1994	\$3,967.42	\$3,001.00	Active	25
Johnson Space Center	415	RIGGING EQUIPMENT STORAGE BUILDING	1967	\$27,679.21	\$4,550.00	Active	8
Johnson Space Center	843	SEWAGE LIFT STATION NO. 4, (25 GPM)	1965	\$22,955.65	\$3,500.00	Active	18
Johnson Space Center	J-2AA	WIND DIRECTION INDICATER	1978	\$4,215.52	\$1,716.00	Active	25
Johnson Space Center	T-578	PORTABLE BUILDING FOR HOUSING	1966	\$10,806.85	\$2,916.00	Active	28
Johnson Space Center	T-584	PORTABLE SOLAR TEST EQUIPMENT BLDG.	1982	\$3,669.16	\$2,022.00	Active	28
Ellington Field	138	FLAMMABLE STORAGE SHED	1943	\$5,387.35	\$300.00	Active	9
Ellington Field	140a	STORAGE BUILDING NO. 1	1985	\$6,283.68	\$3,710.00	Active	8
Ellington Field	140b	FIRE SUPPRESSION STORAGE BUILDING	1985	\$3,853.20	\$2,275.00	Active	8
Palmdale, USAF Industrial Plant	3002	STORM DRAIN SERVICE LINE BLDG AG	1976	\$5,771.71	\$2,000.00	Active	25
Palmdale, USAF Industrial Plant	3183	OPERATION SHED	1975	\$944.64	\$300.00	Active	25
Palmdale, USAF Industrial Plant	3193	STORAGE CANOPY	1985	\$8,468.58	\$5,000.00	Active	25
White Sands Test Facility	103	FLAG POLE	1962	\$16,555.71	\$2,335.00	Active	25
White Sands Test Facility	118	GENERAL PURPOSE STORAGE BUILDING	1963	\$27,588.68	\$3,985.00	Active	8
White Sands Test Facility	254	RECHARGER BUILDING	1988	\$3,608.98	\$2,280.00	Active	4
White Sands Test Facility	319	STAND SUPPORT BUILDING	1969	\$17,495.80	\$4,250.00	Active	4
White Sands Test Facility	501	FUEL STORAGE CONTROL BLDG	1964	\$13,577.83	\$4,216.00	Active	28
White Sands Test Facility	511	HYDROGEN STORAGE CONTROL BLDG.	1964	\$9,514.83	\$1,416.00	Active	28
White Sands Test Facility	521	OXIDIZER STORAGE CONTROL BLDG.	1964	\$13,663.81	\$4,816.00	Active	28
White Sands Test Facility	531	CRYOGENICS STORAGE CONTROL BLDG.	1964	\$9,514.83	\$1,416.00	Active	28
White Sands Test Facility	883	AREA WARNING SYSTEM	1964	\$41,449.49	\$2,845.00	Active	25
White Sands Test Facility	T-115	PAINT STORAGE BUILDING	1964	\$11,434.85	\$1,707.00	Active	9
White Sands Test Facility	T-165	MCDAC TRAILER 800	1966	\$13,286.02	\$2,100.00	Active	7

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Facility		AREA					
White Sands Test Facility	T-211	GENERAL PURPOSE BUILDING	1965	\$11,372.88	\$1,734.00	Active	28
White Sands Test Facility	T-251	TEST FACILITY BUILDING	1964	\$9,547.64	\$3,250.00	Active	1
White Sands 1st TDRSS	010	IMPLEMENTATION STORAGE BLDG. (WSGT)	1990	\$5,987.40	\$3,934.00	Active	8
White Sands 1st TDRSS	018	FACILITIES STORAGE BLDG (WSGT)	1990	\$3,220.47	\$2,116.00	Active	8
Kennedy Space Center	K6-2046	HURRICANE STORAGE SHELTER	1984	\$8,081.76	\$4,750.00	Active	9
Kennedy Space Center	K6-2197	VEHICLE SHED	1988	\$7,597.86	\$4,800.00	Active	9
Kennedy Space Center	K7-0612	POL	1965	\$28,688.00	\$4,374.00	Standby	9
Kennedy Space Center	L7-0989	GN2 CONTROL BUILDING	1987	\$6,473.58	\$4,000.00	Active	10
Kennedy Space Center	H5-1434B	POLE SHED	1974	\$13,650.92	\$4,000.00	Active	25
Kennedy Space Center	H7-1681	LIFEGUARD BUILDING (NPS)	1963	\$32,538.72	\$4,700.00	Active	24
Kennedy Space Center	J6-0306	EQUIPMENT SHELTER (C-BAND)	1965	\$9,103.55	\$1,388.00	Active	9
Kennedy Space Center	K6-0445	CONTRACTOR SUPPORT BLDG. NO. 4	1967	\$31,734.18	\$4,479.00	Active	8
Kennedy Space Center	K6-1547D	CABLE REEL SHED	1986	\$27,669.15	\$5,000.00	Active	9
Kennedy Space Center	M6-0486A	LOADING DOCK	1966	\$10,439.02	\$1,650.00	Active	25
Kennedy Space Center	M6-0488	HURRICANE STORAGE SHELTER	1984	\$8,081.76	\$4,750.00	Abandoned	9
Kennedy Space Center	M6-0505	TOUR BUS FUELING FACILITY	1979	\$10,919.52	\$4,830.00	Active	10.2
Kennedy Space Center	M6-0506	ROADS & GROUNDS MAINTENANCE NO. 2	1968	\$11,144.95	\$1,954.00	Active	23
Kennedy Space Center	M6-0537	STORAGE & SALVAGE OFFICE	1965	\$26,497.37	\$4,040.00	Active	5
Kennedy Space Center	M6-0595B	STORAGE BUILDING	1970	\$7,683.58	\$1,562.00	Active	9
Kennedy Space Center	M6-0744A	HAZARDOUS WASTE STAGING AREA	1986	\$6,878.19	\$4,153.00	Active	9
Kennedy Space Center	M6-0791A	LOADING DOCK	1964	\$21,636.82	\$3,220.00	Mothballed	25
Kennedy Space Center	M7-1460	LIQUID HYDROGEN PAD	1966	\$25,989.46	\$4,312.00	Mothballed	9
Kennedy Space Center	M7-1461	LIQUID HYDROGEN PAD	1966	\$59,835.43	\$4,912.00	Mothballed	9
Kennedy Space Center	TR1-474	TOUCHTON (BOXCAR)	1981	\$3,922.12	\$2,000.00	Active	7
Kennedy Space Center	TR1-475	TOUCHTON (BOXCAR)	1981	\$7,373.58	\$3,760.00	Active	7
Kennedy Space Center	TR1-476	TOUCHTON (BOXCAR)	1981	\$7,375.54	\$3,761.00	Active	7
Kennedy Space Center	TR1-477	TOUCHTON (BOXCAR)	1981	\$3,922.12	\$2,000.00	Active	7
Kennedy Space Center	TR1-712	RHODE ISLAND	1985	\$5,081.15	\$3,000.00	Active	7
Kennedy Space Center	TR1-751	MOBILE FIELD OFFICE	1991		\$2,950.00		0
Kennedy Space Center	TR1-752	MOBILE FIELD OFFICE	1991	\$5,456.21	\$3,650.00	Active	7
Cape Canaveral Air Force Station	1207AA	CAMERA PADS	1969	\$6,418.37	\$1,233.00	Active/Heritage	20.1
Cape Canaveral Air Force Station	1207GG	STORM DRAINAGE SYSTEM	1955	\$26,445.24	\$3,016.00	Active/Heritage	18.2
Cape Canaveral Air Force Station	1207S	SEPTIC TANK	1955	\$9,838.05	\$1,122.00	Active/Heritage	18.1
Cape Canaveral Air Force Station	19015	NITRO TUBE BANK FILL STAT/LC-19	1976	\$3,950.73	\$1,369.00	Abandoned	10
Cape Canaveral Air Force Station	54945	HAZARDOUS WASTE STAG. FAC.	1986	\$6,878.19	\$4,153.00	Active	9

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Cape Canaveral Air Force Station	66237	HAZARDOUS WASTE STAG. FAC.	1984	\$7,418.21	\$4,360.00	Active	9
Cape Canaveral Air Force Station	77609	SENTRY HOUSE	1964	\$23,430.93	\$3,487.00	Active	24
Marshall Space Flight Center	4319	Storage Building	1943	\$41,877.63	\$2,332.00	Active	8
Marshall Space Flight Center	4519	LOX Transfer Control House	1965	\$26,673.56	\$4,130.00	Mothballed	24
Marshall Space Flight Center	4579	Liquid Waste Disposal Reservoir	1957	\$37,678.67	\$4,664.00	Abandoned	18.1
Marshall Space Flight Center	4587	Vacuum Pump Station	1958	\$12,666.01	\$1,617.00	Active	24
Marshall Space Flight Center	4598	Nitrogen Gas Storage Facility	1959	\$9,905.64	\$1,320.00	Active	9
Marshall Space Flight Center	4680	Test Support Building	1966	\$18,980.03	\$3,000.00	Active	4
Marshall Space Flight Center	4756	Storage Building	1961	\$18,100.09	\$2,500.00	Active	8
Marshall Space Flight Center	9959	STORAGE AREA	1962		\$728.00		0
Marshall Space Flight Center	9960	COMPRESSOR PAD	1962		\$291.00		21
Marshall Space Flight Center	9961	STILLING BASINS (2)	1962		\$492.00		0
Marshall Space Flight Center	9962	LEACHING FIELD	1962		\$1,437.00		0
Marshall Space Flight Center	9963	STORAGE TANK	1962		\$2,427.00		0
Marshall Space Flight Center	9971	WATER LINE	1960		\$264.00		0
Michoud Assembly Facility	077-23	TRANSFORMER BANK NO. 23	1965	\$15,274.99	\$3,755.00	Active	16.2
Michoud Assembly Facility	077-27	TRANSFORMER BANK NO. 27	1966	\$2,847.00	\$450.00	Active	16.2
Michoud Assembly Facility	077-28	TRANSFORMER BANK NO. 28	1965	\$12,054.99	\$1,838.00	Active	16.2
Michoud Assembly Facility	077-29	SUBSTATION NO. 29	1966	\$88,915.27	\$4,193.00	Active	16.2
Michoud Assembly Facility	077-35	TRANSFORMER BANK NO. 35	1965	\$12,763.34	\$1,946.00	Active	16.2
Michoud Assembly Facility	077-36	TRANSFORMER BANK NO. 36	1965	\$5,723.44	\$1,024.00	Active	16.2
Michoud Assembly Facility	077-37	TRANSFORMER BANK NO. 37	1965	\$12,763.34	\$1,946.00	Active	16.2
Michoud Assembly Facility	077-50	TRANSFORMER BANK NO. 50	1985	\$8,468.58	\$5,000.00	Active	16.2
Michoud Assembly Facility	182	FLAGPOLE	1943	\$32,324.07	\$1,800.00	Active	25
Michoud Assembly Facility	324	WASTE OIL STORAGE	1987	\$6,336.01	\$3,915.00	Active	10
Santa Susanna Field Laboratory	IO200088	SIDEWALK	1956	\$8,375.44	\$1,000.00	Active	21
Santa Susanna Field Laboratory	IO200093	SEWAGE COLLECTION SYSTEM	1956	\$40,394.74	\$4,823.00	Active	18
Santa Susanna Field Laboratory	IO200094	SEWAGE TREATMENT PLANT	1956	\$27,381.81	\$3,782.00	Active	18.1
Santa Susanna Field Laboratory	IO200102	LIQUID NITROGEN LINE	1957	\$5,655.48	\$700.00	Active	9
Santa Susanna Field Laboratory	IO200110	ELECTRICAL SUBSTATION	1956	\$8,375.44	\$1,000.00	Active	16.2
Santa Susanna Field Laboratory	IO200114	BOUNDRY FENCE	1956	\$9,757.39	\$1,165.00	Active	25
Santa Susanna Field Laboratory	IO200168	DELTA INSPECTION OFFICE	1997	\$2,077.91	\$1,700.00	Active	12
Santa Susanna Field Laboratory	IO200169	LIQUID NITROGEN	1956	\$12,144.38	\$1,450.00	Active	24

Fiscal Year 2004 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Laboratory		SHELTER-BLDG 232					
Santa Susanna Field Laboratory	IO200178	FLAG POLE	1956	\$1,901.22	\$227.00	Active	25
Santa Susanna Field Laboratory	IO200179	INTERIOR FENCE	1957	\$15,326.34	\$1,897.00	Active	25
Santa Susanna Field Laboratory	IO200314	ELEC SUBSTATION-5000 KVA	1965	\$7,208.07	\$1,099.00	Active	16.2
Santa Susanna Field Laboratory	IO200316	HYDROGEN LOADING PAD-DELTA	1966	\$27,375.53	\$4,327.00	Active	25
Santa Susanna Field Laboratory	IO200340	HYDROGEN LOADING PAD-DELTA	1966	\$28,596.58	\$4,520.00	Active	25
Santa Susanna Field Laboratory	IO200458	ELECTRICAL CONTROL STATION-BLDG 235	1964	\$20,158.53	\$3,000.00	Active	16.1
Santa Susanna Field Laboratory	IO200459	ELEC STATION-BLDG 236	1964	\$20,158.53	\$3,000.00	Active	16.1
Santa Susanna Field Laboratory	IO200460	ELECTRICAL STATION-BLDG 237	1964	\$20,158.53	\$3,000.00	Active	16.1
Santa Susanna Field Laboratory	IO200466	PYPHORIC STORAGE SHELTER	1961	\$30,733.95	\$4,245.00	Active	9
Santa Susanna Field Laboratory	IO200467	ROOF FOR FUEL STATION-NO.925	1961	\$10,679.05	\$1,475.00	Active	25
Santa Susanna Field Laboratory	IO200482	ROAD	1956	\$25,126.31	\$3,000.00	Active	21
Santa Susanna Field Laboratory	IO200485	FIRE PROTECTION LINE	1956	\$41,877.19	\$5,000.00	Active	19
Santa Susanna Field Laboratory	IO504008	AIR COND. COCA, IMPROVEMENT	1997	\$1,566.99	\$1,282.00	Active	17
Santa Susanna Field Laboratory	IO504010	COCA AREA IMPROVEMENT	1997	\$414.36	\$339.00	Active	13
Santa Susanna Field Laboratory	IO504734	HELIUM SYSTEM	1997	\$1,503.43	\$1,230.00	Active	9
Stennis Space Center	2106	MAINTENANCE STORAGE BUILDING	1967	\$29,753.63	\$4,891.00	Active	9
Stennis Space Center	TRL-117	TRAILER 117	1969	\$22,357.60	\$4,295.00	Active	7
Stennis Space Center	TRL-235	TRAILER 235	1979	\$9,771.05	\$4,322.00	Active	7
Stennis Space Center	TRL-236	TRAILER 236	1979	\$10,218.68	\$4,520.00	Active	7
Plum Brook Station	1197	REACTOR MONITORNG STA(1111)	1959	\$0.00	\$0.00	In-Active	2
Langley Research Center	1299A	OPERATIONS SUPPORT FACILITY NO. 1	1965	\$0.00	\$3,396.00	Active	1
Langley Research Center	1299B	OPERATIONS SUPPORT FACILITY NO. 2	1965	\$0.00	\$3,396.00	Active	1
Langley Research Center	1299C	OPERATIONS SUPPORT FACILITY NO. 3	1965	\$0.00	\$3,396.00	Active	1
Langley Research Center	1161C	SCR SHED	2004	\$0.00	\$1,748.00	Active	9
National Scientific Balloon Facility, Palestine, TX	032/1621	Administration Storage Building	2004		\$5,000.00		0
Ames Research Center	T28-D	MODULAR OFFICE TRAILER COMPLEX				Active/Leased	25
Ames Research Center	T28-E	MODULAR OFFICE TRAILER COMPLEX				Active/Leased	25
Glenn Research Center	0113	10X10 FT.SWT SHOP BLDG.		\$0.00		Active	3
Glenn Research Center	0319	SUBSTATION N				Active	16.2
Langley Research Center	1203A	VEHICLE STORAGE FACILITY		\$0.00	\$0.00	Active	8
Langley Research Center	1224T3	ALUMNI ASSOC & COMM - RMS 300 (T119)		\$0.00	\$0.00	Abandoned	7
Langley Research Center	1226A	LANGLEY WORKERS MEMORIAL		\$0.00	\$0.00	Active	25
Langley Research Center	1226B	TIME CAPSULE		\$0.00	\$0.00	Active	25

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Name	Fac	Desc	Built	CRV	Book_Val	Status	DM Cat
Langley Research Center	1226C	FIFTY YRS OF FLIGHT RES MEMORIAL		\$0.00	\$0.00	Active	25
Langley Research Center	1237T10	ART CONTR HOUSING - RMS 213 (T134)		\$0.00	\$0.00	Abandoned	7
Langley Research Center	1237T2	ART CONTR HOUSING - RMS 206 (T135)		\$0.00	\$0.00	Abandoned	7
Langley Research Center	1237T5	ART CONTR HOUSING - RMS 100 (T131)		\$0.00	\$0.00	Abandoned	7
Langley Research Center	1237T7	RESTROOM NOS. 114 & 115 (T132)		\$0.00	\$0.00	Abandoned	7
Langley Research Center	1237T8	LOGISTICS SUPPORT - RMS 308 (T137)		\$0.00	\$0.00	Abandoned	7
Langley Research Center	1265G	8' HTT CMLX - 6000 PSI BOTTLEFIELD		\$0.00	\$0.00	Active	3
Langley Research Center	1292A	BUILDING TRADES STORAGE A		\$14,192.00	\$4,507.00	Active	9
Langley Research Center	1299D	RADIOMETRY TEST FAC (CLOSED)		\$0.00	\$0.00	Abandoned	13
Langley Research Center	1310	LANGLEY FEDERAL CREDIT UNION (PRIVATE)		\$0.00	\$0.00	Active	28
Langley Research Center	1312	EARTH & SCIENCE PROG OFF		\$0.00	\$0.00	Abandoned	5
Langley Research Center	1321	GUARDHOUSE AT GOLF COURSE		\$0.00	\$0.00	Active	24
Langley Research Center	851-11	FENCE MODS		\$0.00	\$0.00	Active	21
Santa Susanna Field Laboratory	IO200058	COCA DELTA XRAY FACILITY		\$32,317.00	\$4,000.00	Active	12
Santa Susanna Field Laboratory	IO200089	VEHICLE FUELING LOCATION		\$31,182.00	\$3,723.00	Active	25

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APPENDIX D. LIST OF CRVS GENERATED FOR THE FY05 ASSESSMENT

Table D-1 Generated CRVs for the FY05 Assessment

Name	Fac	Desc	Status	DMCat	Capacity	U O M	Built	CRV
								\$29,729,723
Dryden Flight Research Center	NB095	Substation #12		16.2	12			\$75,000
Dryden Flight Research Center	NB115	Substation #24		16.2	0			\$75,000
Dryden Flight Research Center	NB092	SUBSTATION NO. 13		16.2	12			\$125,000
Dryden Flight Research Center	NB093	SUBSTATION NO. 15		16.2	12			\$100,000
Glenn Research Center	341	Recreation Center		0.0	0			\$250,000
Glenn Research Center	348	Child Development Center		0.0	0			\$250,000
Glenn Research Center	342	Picnic Pavillions		0.0	0			\$50,000
Glenn Research Center	0319	SUBSTATION N	Active	16.2	5000	K V	1982	\$250,000
Glenn Research Center	0333A	Acoustic Lab, EMI (Electromagnetic Interference) Lab ,Thermal Cycling Chambers Lab and Storage Area		1.0	0			\$1,000,000
Plum Brook Station	9858	Liquid Nitrogen Dewal at Space Power Facility		10.1	0			\$26,660
Plum Brook Station	9837	Helium Farm at Reactor		10.1	0			\$26,660
Plum Brook Station		EPA Test Building		0.0	0			\$250,000
Plum Brook Station	2131	"A" Site Boiler House		28.0	0			\$253,439
Plum Brook Station	1921	Wind Turbine Shop		28.0	0			\$253,439
Plum Brook Station	2813	K Site Vacuum Equipment Building		24.0	0			\$100,000
Langley Research Center	1321	GUARDHOUSE AT GOLF COURSE	Active	24.0	0	S F	1989	\$25,000
Langley Research Center	1312	EARTH & SCIENCE PROG OFF	Active	5.0	2330	S F	1989	\$417,769
Langley Research Center	851-11	FENCE MODS	Active	21.0	21	S Y	2003	\$25,000
Goddard Space Flight Center		Dome, small salt dome (on map as 027F)		9.0	0			\$51,180
Goddard Space Flight Center		Shed by 25b (not on map?)		0.0	0			\$29,102
Goddard Space Flight Center		Gift shop (on map as 088B)		25.0	0			\$101,050
Goddard Space Flight Center		Collimation tower (025D ?)		13.0	0			\$50,000
Goddard Space Flight Center		Shed next to 25b (on map as 025E)		25.0	0			\$50,525
Goddard Space Flight Center		Diesel fuel farm (on map as 031B)		10.2	0			\$497,297
Goddard Space Flight Center		Shed, storage (on map as 027C)		25.0	0			\$10,000
Goddard Space Flight Center		Antenna and shed. Area 200 bldg on map as 201E		7.0	0		2001	\$25,000
Goddard Space Flight Center		Shed, metal storage (on map as 403)		25.0	0			\$10,000
Goddard Space Flight Center		Bunker (on map as 025H) - by 25F		11.0	0			\$312,084
Goddard Space Flight Center		Shed, near metal substation (on map as 220)		25.0	0			\$10,000

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Name	Fac	Desc	Status	DMCat	Capacity	U O M	Built	CRV
Goddard Space Flight Center		Dome building, composite material with steel frame (on map as 215)		23.1	0			\$59,385
Goddard Space Flight Center		Dome bldg. galv metal wall (on map as 217)		25.0	0			\$51,333
Goddard Space Flight Center		Shed, storage shed by 79 (on map as 081)		9.0	0			\$10,000
Goddard Space Flight Center		Collimation tower (on map as 025N)		13.0	0			\$50,000
Goddard Space Flight Center		Shed, wooden storage shed (by bldg 81)		9.0	0			\$25,590
Goddard Space Flight Center	030A	PUMP HOUSE		25.0	0			\$100,000
Wallops Flight Facility	V-050C	A/G FUEL OIL STORAGE TANK		0.0	0			\$10,000
Wallops Flight Facility	V-130	Antenna Tower		0.0	0			\$50,000
Wallops Flight Facility		Storage Shed		0.0	0			\$30,000
Wallops Flight Facility	V-091	Blockhouse		0.0	0			\$6,000
Wallops Flight Facility		Storage Shed		0.0	0			\$20,000
Wallops Flight Facility	V-066B	Two Fuel Oil Tanks		0.0	0			\$6,000
Wallops Flight Facility	V-066A	Airport Surveillance Radar Tower		0.0	0			\$60,000
Wallops Flight Facility	W-035B	Storage Blockhouse		0.0	0			\$50,000
Wallops Flight Facility	U-030C	Rada Tower		0.0	0			\$50,000
Wallops Flight Facility	V-091	BLOCK HOUSE		0.0	0			\$100,000
Wallops Flight Facility		Bulk Storage Facility		0.0	0			\$12,000
Wallops Flight Facility	W-035B	Storage Blockhouse		0.0	0			\$3,000
Poker Flat Research Range, Fairbanks, AK		Red Stone Antenna Building (SAB)		0.0	225	S F		\$1,337,935
Canberra Deep Space Communications Complex, Australia	ST27	Cooling Tower		0.0	0			\$250,000
Canberra Deep Space Communications Complex, Australia	MS-04	Bore Pumps		0.0	0			\$50,000
Canberra Deep Space Communications Complex, Australia	ST13	Electrical Transformer		16.2	0			\$60,000
Canberra Deep Space Communications Complex, Australia	054	BWG MG Shelter DSS 34		24.0	0			\$15,000
Canberra Deep Space Communications Complex, Australia	ST-10	Water Tank (Domestic)		0.0	0			\$125,000
Canberra Deep Space Communications Complex, Australia	053	Fire valve rm for DSS 34		24.0	0			\$15,000
Canberra Deep Space Communications Complex, Australia	051	Distilled Water Processing		19.1	0			\$49,000
Table Mountain Observatory	TM-LN	Liquid Nitrogen Station		10.0	0			\$85,000
Johnson Space Center	LNDCO	LEASE NASSAU DEVELOPMENT COMPANY	Active	24.0	0	S F	2003	\$100,000
White Sands Test Facility	651	Injection Well House		0.0	0			\$300,000
White Sands Test Facility	HANGER #1	STA HANGER AT EL PASO INTERNATIONAL AP	Active	23.0	23006	S F	1966	\$750,000
White Sands Test Facility	HANGER #2	T-38 HANGER AT EL PASO INTERNATIONAL AP	Active	23.0	28297	S F	1966	\$1,000,000
WSTF Space Harbor		Dispensary Trailer (Medical facility for pilots after landing)		0.0	1350	S F		\$32,000

Fiscal Year 2004 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

Name	Fac	Desc	Status	DMCat	Capacity	U O M S F	Built	CRV
White Sands 1st TDRSS	T-5	STORAGE TRAILER		7.0	900			\$72,347
Kennedy Space Center	K6-0792A	Chlorine Storage Building		0.0	0			\$7,000
Kennedy Space Center	K6-1697	GAS/DM WATER PROCESSING PLANT		18.1	0			\$1,000,000
Kennedy Space Center	K6-1446E	Drum Storage Building		0.0	0		1986	\$10,000
Kennedy Space Center	K6-1347A	Hazardous Waste Staging Area/Portable		0.0	0			\$5,000
Kennedy Space Center	K6-1323	S. PAPI LIGHTS 7500 FT		15.0	0			\$200,000
Kennedy Space Center	K6-1170	S. PAPI LIGHTS 6500 FT		15.0	0			\$200,000
Kennedy Space Center	K6-2044	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	J7-1388B	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	K6-0794B	Sand Filter Treatment Tank		0.0	0		1988	\$10,000
Kennedy Space Center	L7-1759	Equipment Shelter		0.0	0			\$7,000
Kennedy Space Center	K6-0743B	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	K6-0743A	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	K6-0696D	ENVIRONMENTAL CONTROL BUILDING		9.0	0			\$125,000
Kennedy Space Center	K6-0696C	Hazardous Waste Staging Area/Portable		0.0	0			\$30,000
Kennedy Space Center	K6-0696B	TURNSTILE SHELTER		24.0	0			\$10,000
Kennedy Space Center	K6-0948	Gate House		0.0	0			\$10,000
Kennedy Space Center	M6-0166	Pump House N11		0.0	0			\$10,000
Kennedy Space Center	M6-0689C	Air Compressor Storage Building		0.0	0			\$3,000
Kennedy Space Center	M6-0555	Nursery		0.0	0		2001	\$6,000
Kennedy Space Center	M6-0505A	Gas Storage		0.0	0		2001	\$6,341
Kennedy Space Center	M6-0502	Storage Yard		0.0	0		2001	\$6,000
Kennedy Space Center	M6-0456	Battery Storage Shed		0.0	0		2001	\$8,159
Kennedy Space Center	K6-1697A	Support Building		0.0	0			\$10,000
Kennedy Space Center	M6-0211A	External Tanks and Solid Rocket Mockup		0.0	0		2001	\$615,079
Kennedy Space Center	K6-1747	HYPERGOL DECONTAMINATION BLDG		25.0	0			\$500,000
Kennedy Space Center	M5-1594A	Hazardous Waste Staging Building		0.0	0			\$6,000
Kennedy Space Center	M5-1586A	Pump House N9		0.0	0			\$10,000
Kennedy Space Center	M5-1586	Pump House N8		0.0	0			\$10,000
Kennedy Space Center	M5-1547	Antenna #2		0.0	0			\$1,000,000
Kennedy Space Center	M5-1543	Antenna #1		0.0	0			\$750,000
Kennedy Space Center	J8-1708K	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	M6-0409N	Entrance Ticket Booth		0.0	0		2000	\$615,079
Kennedy Space Center	J5-0341	Ascent Wind Profiler		25.0	0			\$20,000
Kennedy Space Center	J6-2409	Meteorological Site #4		0.0	0			\$7,000
Kennedy Space Center	J6-2024	Guard House		0.0	0			\$8,568

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Name	Fac	Desc	Status	DMCat	Capacity	U O M	Built	CRV
Kennedy Space Center	J6-0490C	Equipment Shelter		0.0	0		1965	\$24,755
Kennedy Space Center	K7-0951	Gate House		0.0	0			\$10,000
Kennedy Space Center	J5-1195	DIFFERENTIAL GLOBAL POSITIONING BLDG		13.0	0		2001	\$250,000
Kennedy Space Center	J8-2126	Guard House		24.0	0			\$10,000
Kennedy Space Center	L5-1647	Pump House N10		0.0	0			\$10,000
Kennedy Space Center	K7-0287	Security Boathouse		0.0	0			\$25,000
Kennedy Space Center	G5-1061A	Equipment Building		0.0	0		2000	\$10,000
Kennedy Space Center	J5-0132	Meteorological Site #5		0.0	0			\$7,000
Kennedy Space Center	H5-1315	North PAPI Lights, 6.5K'		0.0	0			\$200,000
Kennedy Space Center	M6-0880	GSA Seized Property Area		0.0	0			\$6,000
Kennedy Space Center	66246	Contaminated Water Tank		0.0	0		1979	\$250,000
Kennedy Space Center	J5-1095	Remote Satellite Measurement Unit "B"		13.2	0			\$7,000
Kennedy Space Center	L5-0033	Pump House N13		0.0	0			\$10,000
Kennedy Space Center	J7-1388C	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	66256	Waste Water Tank		0.0	0		1994	\$500,000
Kennedy Space Center	K6-1996I	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	J8-1708J	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	K6-1847F	Generator Maintenance Shop		0.0	0			\$6,000
Kennedy Space Center	K6-2095	Hazardous Waste Staging Area/Portable		0.0	0			\$6,000
Kennedy Space Center	K7-0042	Guard House		0.0	0			\$17,136
Kennedy Space Center	J7-0132A	LOX OFFICE BUILDING PAD B		25.0	0		2002	\$100,000
Kennedy Space Center	J8-0956	Guard House		24.0	0			\$10,000
Kennedy Space Center	K7-0315	Ammonia Cylinder Storage Building		0.0	0			\$41,840
Kennedy Space Center	H5-1113	North PAPI Lights, 7.5K'		0.0	0			\$200,000
Kennedy Space Center	K7-0188C	Toilet Room		0.0	0		1987	\$38,199
Kennedy Space Center	K6-2026	Pump House N14		0.0	0			\$10,000
Kennedy Space Center	J7-1287	Guard House		0.0	0			\$10,000
Kennedy Space Center	J7-0337J	Hazardous Waste Staging Area/Portable		0.0	0		1990	\$6,000
Kennedy Space Center	K6-1997	Astronaut Van Garage		0.0	0			\$15,000
Kennedy Space Center	K7-0140A	Guard House		0.0	0			\$8,568
Kennedy Space Center	K7-1005A	E GATE HOUSE		25.0	0			\$6,000
Kennedy Space Center	M7-0556B	Hazardous Waste Staging Building		9.0	0			\$11,516
Kennedy Space Center	P6-1886	HANDBALL COURT		25.0	0			\$75,000
Kennedy Space Center	P6-1333	FIREARMS RANGE PAVILION STORAGE		0.0	0			\$10,000
Kennedy Space Center	P6-1689	PAVILION BUILDING		24.0	0			\$125,000
Kennedy Space Center	P6-1386	PAVILION		0.0	0			\$75,000
Kennedy Space Center	M6-0894C	POL Shed		0.0	0			\$50,000

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Name	Fac	Desc	Status	DMCat	Capacity	U O M	Built	CRV
Kennedy Space Center	P6-1833	RESTROOMS		25.0	0			\$15,000
Kennedy Space Center	H5-2144	Gate House 4B		0.0	0			\$10,000
Kennedy Space Center	P6-1436	RESTROOMS		0.0	0			\$15,000
Kennedy Space Center	P6-1835	RESTROOMS		25.0	0			\$15,000
Kennedy Space Center	M6-0378	HAZARDOUS WASTE STAGING SHELTER		0.0	0			\$125,000
Kennedy Space Center	M7-0556A	POL Building		10.2	0			\$8,000
Kennedy Space Center	M6-0791B	COMMUNICATIONS MAINTENANCE & STORAGE		0.0	0			\$6,000
Kennedy Space Center	P6-1789B	PARK RESIDENT'S TRAILER		7.0	0			\$72,347
Kennedy Space Center	M7-0660	Air Liquide Equipment Shelter		25.0	0			\$10,000
Kennedy Space Center	M6-1063	CITRUS TANK SHELTER		0.0	0			\$20,000
Kennedy Space Center	H7-1681A	CHEMICAL STORAGE SHED		9.0	0			\$7,000
Kennedy Space Center	P6-1833A	BALL PARK CONCESSION STAND		25.0	0			\$15,000
Kennedy Space Center	C2-1306	GENERATOR BUILDING		0.0	0			\$150,000
Kennedy Space Center	P6-1735	RESTROOMS		25.0	0			\$15,000
Kennedy Space Center	P6-1838	GUARD HOUSE		25.0	0			\$10,000
Kennedy Space Center	P6-1686	PAVILION BUILDING		0.0	0			\$75,000
Kennedy Space Center	K7-0419	PROPELLANT SUPPORT BLDG.		1.0	0			\$10,000
Kennedy Space Center	P6-1836	RESTROOMS		25.0	0			\$150,000
Kennedy Space Center	P6-1837	BOAT RAMP SNACK BAR		25.0	0			\$10,000
Kennedy Space Center	C2-1305	DASR EQUIPMENT BLDG.		0.0	0			\$50,000
Kennedy Space Center	P6-1687	RESTROOMS		0.0	0			\$15,000
Kennedy Space Center	M7-1469D	Storage Shed		0.0	0			\$10,000
Kennedy Space Center	N6-0065	Equipment Shelter		0.0	0			\$15,000
Kennedy Space Center	TR1-585	KING'S CUSTOM		0.0	0		1983	\$50,000
Kennedy Space Center	TR1-469	BENETTE		0.0	0		1981	\$50,000
Kennedy Space Center	M7-1211	Cooling Tower		0.0	0		1991	\$1,000,000
Kennedy Space Center	M7-1357A	Line-of-Sight Antenna		0.0	0			\$500,000
Kennedy Space Center	TR1-586	KING'S CUSTOM		0.0	0		1983	\$50,000
Kennedy Space Center	M7-0459A	Guard House		25.0	0			\$4,850
Kennedy Space Center	M7-1061B	Line-of-Sight Antenna		0.0	0			\$500,000
Kennedy Space Center	M6-0427	Pavilion		0.0	0			\$75,000
Kennedy Space Center	M7-1469F	Cooling Tower		0.0	0			\$1,000,000
Kennedy Space Center	M8-2230	Bridge - NASA Causeway East		0.0	0			\$6,763,999
Kennedy Space Center	TR1-430	TRIPLE A CUSTOM		0.0	0		1981	\$50,000
Kennedy Space Center	N6-0407	Pump House N3		0.0	0			\$10,000
Kennedy Space Center	N6-0107	Pump House N5		0.0	0			\$10,000
Kennedy Space Center	M7-1469C	POL Shed		0.0	0			\$50,000

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Name	Fac	Desc	Status	DMCat	Capacity	U O M	Built	CRV
Kennedy Space Center	M7-0360A	Hazardous Waste Staging Area		0.0	0			\$6,000
Kennedy Space Center	M7-0355D	ELECTRICAL MOTOR CONTROL BLDG		0.0	0			\$15,000
Kennedy Space Center	J6-2076	Launch Viewing Area		0.0	0			\$100,000
Kennedy Space Center	J5-1145	Remote Satellite Measurement Unit "C"		25.0	0			\$7,000
Kennedy Space Center	M6-1757	Pump House N6		0.0	0			\$10,000
Kennedy Space Center	J5-1144	Meteorological Site #3		25.0	0			\$7,000
Kennedy Space Center	C2-1300	DASR RADAR TOWER		0.0	0			\$500,000
Kennedy Space Center	TR1-439	T&R CUSTOM		0.0	0		1981	\$50,000
Kennedy Space Center	J5-1094	Remote Satellite Measurement Unit "A"		0.0	0			\$7,000
Kennedy Space Center	F5-2158	PUMP STATION		19.0	0			\$10,000
Kennedy Space Center	TRM-038	TEMPORARY BUILDING NO. 57 (2T)		0.0	0		1984	\$50,000
Kennedy Space Center	TR1-717	TRIPLE A CUSTOM		0.0	0		1982	\$50,000
Kennedy Space Center	M7-0361A	AMMONIA VAPOR CONTAINMENT BLDG		25.0	0			\$350,000
Cape Canaveral Air Force Station	49635-A	TANK, DIESEL		10.0	0			\$50,000
Cape Canaveral Air Force Station	66311	SUBSTATION		16.2	0			\$36,000
Cape Canaveral Air Force Station	80700J	EQUIPMENT SHELTER		9.0	0			\$75,000
Cape Canaveral Air Force Station	66267	TANK FARM AREA		10.2	0			\$50,000
Cape Canaveral Air Force Station	66310-1	TANK, WASTE DETERGENT		10.1	0			\$4,000
Cape Canaveral Air Force Station	80700K	EQUIPMENT SHELTER		9.0	0			\$80,000
Cape Canaveral Air Force Station	66266	DRUM STORAGE BUILDING		9.0	0			\$28,831
Cape Canaveral Air Force Station	60686	ANTENNA		13.2	0		2002	\$7,000
Cape Canaveral Air Force Station	1042-1	TANK, RAINWATER SUMP		18.2	0			\$25,000
Cape Canaveral Air Force Station	60683	EQUIPMENT PAD		21.0	0		1968	\$25,000
Cape Canaveral Air Force Station	73004	LIFT STATION		18.0	0			\$50,000
Cape Canaveral Air Force Station	66259	EQUIPMENT BUILDING		23.0	0			\$20,000
Cape Canaveral Air Force Station	80700A	CONTROL BUILDING		25.0	0			\$20,000
Cape Canaveral Air Force Station	80700B	INCINERATOR FUEL TANK		10.0	0			\$3,000
Cape Canaveral Air Force Station	55005A	FUEL TANK, M ANNEX		10.0	0			\$3,000
Cape Canaveral Air Force Station	80700D	CONTAMINATED FUEL TANK		10.0	0			\$6,000
Cape Canaveral Air Force Station	66241	DEIONIZED WATER TANK		10.1	0		1979	\$26,660
Cape Canaveral Air Force Station	1726-A	FUEL TANK		10.0	0			\$4,000
Cape Canaveral Air Force Station	80700C	OXIDIZER FACILITY		10.0	0			\$25,000
Cape Canaveral Air Force Station	1040-1	TANK, RAINWATER SUMP		18.2	0			\$2,000
Cape Canaveral Air Force Station	1732-1	DIESEL FUEL TANK		10.0	0			\$2,000
Marshall Space Flight Center	4771	Wastewater Treatment Facility		0.0	0			\$50,000
Marshall Space Flight Center	4683	Control Building		0.0	0			\$5,000

APPENDIX E: DEMOLISHED FACILITIES

Name	Facility	Description	Status	CRV	Facility DM
Total (\$M)					\$16.75
Crows Landing	T-011	LAB TRAILER	Abandoned	\$17,636	\$2,261
Crows Landing	T-012	FLIGHT OPERATIONS LAB TRAILER	Abandoned	\$189,326	\$24,272
Moffet Federal Airfield	175	LINE MAINTENANCE SHELTER	Abandoned	\$14,859	\$20,687
Moffet Federal Airfield	176	LINE MAINTENANCE SHELTER	Abandoned	\$44,629	\$62,132
Moffet Federal Airfield	T37-D	SPACE CAMP DORMITORY TRAILER		\$141,372	\$5,994
Dryden Flight Research Center	4984	PAYLOAD RECEIVING AREA	Active	\$824,474	\$35,617
Dryden Flight Research Center	T-51	BUCKHORN (PRF) BATHROOMS	Active	\$4,238	\$281
Dryden Flight Research Center	T-32	ADMINISTRATIVE OFFICE	Mothballed	\$25,084	\$0
Glenn Research Center	0316	COMFORT STATION	Active	\$86,977	\$107,338
Glenn Research Center	0317	RECREATION SHELTER	Active	\$230,174	\$302,150
Glenn Research Center	0318	RECREATION SERVICES BUILDING	Active	\$10,295	\$12,257
Glenn Research Center	0320	ACTIVITY CENTER	Active	\$300,526	\$389,362
Glenn Research Center	0398	DAY CARE CENTER	Active	\$861,722	\$1,025,966
Glenn Research Center	0400	SEWAGE PUMPING STATION No. 2	Active	\$108,312	\$32,472
Plum Brook Station	1135	REACTOR 5 COMPRESSOR BUILDING (A)	In-Active	\$420,772	\$240,471
Plum Brook Station	1156	REACTOR ATS WATER STORAGE TANK 200K	In-Active	\$430,480	\$6,586
Plum Brook Station	1192	REACTOR EFFLUENT METERING STATION	In-Active	\$328,691	\$84,375
Plum Brook Station	1195	REACTOR CRYOGENIC & GAS SUPPLY SYSTEM	In-Active	\$1,942,806	\$612,567
Plum Brook Station	9837	HELIUM FARM AT REACTOR		\$26,660	\$0
Langley Research Center	1120	SPA ENVIRN INTERACTIONS LAB(CLOSED)	Abandoned	\$340,990	\$74,677
Langley Research Center	1157	ELEC EQUIPMENT STGE AREA (CLOSED)	Abandoned	\$1,145,361	\$151,188
Langley Research Center	1207	GENERAL STORAGE (PARTS) BLDG(CLOSED)	Abandoned	\$67,377	\$4,218
Langley Research Center	1247G	SUPPORT OPERATIONS OFFICE(CLOSED)	Abandoned	\$3,316,369	\$1,574,280
Langley Research Center	1250T1	ATMOSP SCI CONTR FAC-RMS 100 (T142)	Active	\$17,432	\$3,281
Langley Research Center	1250T4	ATM SCI OFF CMLPX FAC-RMS 400 (T144)	Active	\$86,838	\$11,228
Langley Research Center	1250T6	ATM SCI CONTR SUP FAC-RMS 601 (T146)	Active	\$72,154	\$3,846
Langley Research Center	1270A	COMPOSITE PREPARATION BLDG (CLOSED)	Abandoned	\$82,311	\$58,268
Langley Research Center	1270B	COMPOSITE STORAGE BUILDING (CLOSED)	Abandoned	\$81,768	\$18,610
Langley Research Center	1270C	CHEMICAL TREATMENT FACILITY (CLOSED)	Abandoned	\$116,283	\$14,094
Langley Research Center	1270D	CHEMICAL STORAGE FACILITY (CLOSED)	Active	\$0	\$0
Langley Research Center	1274	CRANE&ELEV MAINT SUPP FAC (CLOSED)	Abandoned	\$2,778,174	\$964,582
Langley Research Center	1278	FLAMABLE STORAGE BUILDING (CLOSED)	Abandoned	\$34,143	\$5,535
Langley Research Center	1278T1	JOHNSON CONTROLS SUPP FAC (T151)	Abandoned	\$24,755	\$12,769
Langley Research Center	1279	INSULATION STORAGE (CLOSED)	Abandoned	\$54,070	\$5,504
Canberra Deep Space Communications Complex, A	MS 11	Fire Detection and Alarm System	Active	\$21,842	\$59
Johnson Space Center	008A	BELOW GROUND PHOTOGRAPHIC WASTE STORAGE FACILITY	Active	\$1,246,085	\$38,617
Johnson Space Center	210	CHILD CARE FACILITY	Active	\$534,471	\$42,384
Johnson Space Center	210a	CHILD CARE ANNEX	Active	\$106,651	\$35,813
Johnson Space Center	356M	HAZARDOUS WASTE CONTAINMENT	Active	\$12,542	\$2,166

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Name	Facility	Description	Status	CRV	Facility DM
Johnson Space Center	356N	HAZARDOUS WASTE CONTAINMENT	Active	\$10,656	\$540
Johnson Space Center	384	FIRE PREVENTION TRAINING CENTER	Active	\$101,249	\$2,653
Johnson Space Center	824	DELUGE SYSTEM, ELEVATED STORAGE, TTA	Active	\$644,950	\$873,907
Kennedy Space Center	H5-2144	Gate House 4B		\$10,000	\$221
Kennedy Space Center	J7-0337A	TEMPORARY BUILDING NO. 30 (15B)	Active	\$520,418	\$780,628
Kennedy Space Center	J7-0337B	TEMPORARY BUILDING NO. 31 (15B)	Active	\$547,137	\$820,706
Kennedy Space Center	J7-0337D	TEMPORARY BUILDING NO. 33 (6B)	Active	\$272,159	\$408,239
Kennedy Space Center	J7-0337E	TEMPORARY BUILDING NO. 34 (2B)	Active	\$91,333	\$137,000
Kennedy Space Center	J7-0337F	TEMPORARY BUILDING NO. 37 (9B)	Active	\$283,668	\$425,502
Kennedy Space Center	J7-0337H	TEMPORARY BUILDING NO. 68 (9B)	Active	\$152,243	\$228,365
Kennedy Space Center	J7-0384	SEWAGE TREATMENT PLANT NO. 6	Active	\$647,336	\$161,834
Kennedy Space Center	J8-1705	SEWAGE TREATMENT PLANT NO. 5	Active	\$1,033,122	\$258,280
Kennedy Space Center	J8-1708A	TEMPORARY BUILDING NO. 1 (19B)	Active	\$476,494	\$714,741
Kennedy Space Center	J8-1708B	TEMPORARY BUILDING NO. 2 (12B)	Active	\$300,070	\$450,104
Kennedy Space Center	J8-1708C	TEMPORARY BUILDING NO. 3 (10B)	Active	\$267,078	\$400,617
Kennedy Space Center	J8-1708D	TEMPORARY BUILDING NO. 4 (4B)	Active	\$101,401	\$152,101
Kennedy Space Center	J8-1708E	TEMPORARY BUILDING NO. 5 (2B)	Active	\$50,700	\$76,051
Kennedy Space Center	J8-1708F	TEMPORARY BUILDING NO. 6 (2B)	Active	\$45,289	\$67,933
Kennedy Space Center	J8-1708G	TEMPORARY BUILDING NO. 7 (2B)	Active	\$45,289	\$67,933
Kennedy Space Center	J8-1708I	TEMPORARY BUILDING NO. 69 (9B)	Active	\$169,820	\$254,730
Kennedy Space Center	K6-0696C	Hazardous Waste Staging Area/Portable		\$30,000	\$3,960
Kennedy Space Center	K6-1148	EQUIPMENT SHELTER	Active	\$15,818	\$6,130
Kennedy Space Center	K7-0564	GN2 CHARGING STATION	Standby	\$6,516,321	\$1,303
Kennedy Space Center	K7-0565	RECLAMATION PLANT	Standby	\$294,239	\$3,207
Kennedy Space Center	K7-1205	GRANDSTAND	Active	\$1,440,688	\$127,645
Kennedy Space Center	K7-0513	WASTE WATER TREATMENT PLANT	Standby	\$986,024	\$14,889
Kennedy Space Center	K7-0514	GN2 LOADING STATION	Standby	\$435,403	\$1,872
Kennedy Space Center	K7-0515	DE-IONIZED WATER PLANT	Standby	\$2,530,014	\$109,550
Kennedy Space Center	K7-0516	PROPELLANT LAB/H.PRESS GAS M.B.	Standby	\$8,215,429	\$437,882
Kennedy Space Center	K7-0517	HAZARDOUS WASTE STAGING BLDG.	Standby	\$14,408	\$1,376
Kennedy Space Center	K7-0562	CLEANED COM/EQUIP STOR BLDG	Standby	\$84,268	\$3,388
Kennedy Space Center	K7-0563	PROPELLANT TRANS RPR/MAINT SHED	Standby	\$2,398,801	\$930,015
Kennedy Space Center	K7-0612	POL	Standby	\$26,277	\$2,599
Kennedy Space Center	M6-0595A	FUEL OIL STORAGE TANK	Active	\$119,211	\$178,817
Kennedy Space Center	M7-1412	HYPERGOL MODULE STORAGE EAST	Active	\$5,787,042	\$1,706,020
Kennedy Space Center	TR1-430	TRIPLE A CUSTOM		\$50,000	\$2,775
Kennedy Space Center	TR1-439	T&R CUSTOM		\$50,000	\$4,440
Kennedy Space Center	TR1-457	SCHILTZ	Active	\$25,047	\$140
Kennedy Space Center	TR1-469	BENETTE		\$50,000	\$4,440
Kennedy Space Center	TR1-479	SOUTHERN OFFICE MFG.	Active	\$17,029	\$15,195
Kennedy Space Center	TR1-501	BOXCAR	Active	\$15,323	\$22,984
Kennedy Space Center	TR1-510	BOXCAR	Active	\$15,323	\$22,984
Kennedy Space Center	TR1-585	KING'S CUSTOM		\$50,000	\$4,440
Kennedy Space Center	TR1-586	KING'S CUSTOM		\$50,000	\$3,450
Kennedy Space Center	TR1-594	SOUTHERN	Active	\$18,747	\$1,875

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Name	Facility	Description	Status	CRV	Facility DM
Kennedy Space Center	TR1-596	TRIPLE A CUSTOM	Active	\$18,747	\$1,875
Kennedy Space Center	TR1-611	BOXCAR	Active	\$78,657	\$117,985
Kennedy Space Center	TR1-612	T&R CUSTOM	Active	\$9,480	\$14,220
Kennedy Space Center	TR1-625	COASTAL BUILDING SYSTEMS	Active	\$50,000	\$4,010
Kennedy Space Center	TR1-635	TRIPLE A CUSTOM	Active	\$17,777	\$14,140
Kennedy Space Center	TR1-691	BOXCAR	Active	\$45,564	\$68,345
Kennedy Space Center	TR1-703	SYSTEMS CRAFT	Active	\$35,849	\$53,773
Kennedy Space Center	TR1-717	TRIPLE A CUSTOM		\$50,000	\$5,540
Kennedy Space Center	TR1-718	T&R CUSTOM	Active	\$15,598	\$30
Kennedy Space Center	TR1-719	DIAMOND B	Active	\$23,089	\$34,633
Kennedy Space Center	TR1-723	TRIPLE A CUSTOM	Active	\$18,702	\$6,403
Kennedy Space Center	TR1-739	COASTAL BUILDING SYSTEMS	Active	\$13,885	\$4,085
Kennedy Space Center	TR1-741	COASTAL BUILDING SYSTEMS	Active	\$13,885	\$16,555
Kennedy Space Center	TR1-742	COASTAL BUILDING SYSTEMS	Active	\$13,885	\$496
Kennedy Space Center	TR1-751	MOBILE FIELD OFFICE	Active	\$4,039	\$586
Kennedy Space Center	TR1-756	DIAMOND ENGINEERED SPACE	Active	\$18,736	\$764
Kennedy Space Center	TR1-758	BOXCAR	Active	\$29,975	\$44,962
Kennedy Space Center	TRM-021	TEMPORARY BUILDING NO. 40 (2T)	Active	\$25,320	\$37,980
Kennedy Space Center	TRM-024	TEMPORARY BUILDING NO. 43 (2T)	Active	\$25,320	\$2,248
Kennedy Space Center	TRM-025	TEMPORARY BUILDING NO. 44 (2T)	Active	\$33,889	\$50,834
Kennedy Space Center	TRM-030	TEMPORARY BUILDING NO. 49 (2T)	Active	\$43,105	\$82
Kennedy Space Center	TRM-033	TEMPORARY BUILDING NO. 52 (2T)	Active	\$35,955	\$2,718
Kennedy Space Center	TRM-035	TEMPORARY BUILDING NO. 54 (2T)	Active	\$29,361	\$2,857
Kennedy Space Center	TRM-038	TEMPORARY BUILDING NO. 57 (2T)		\$50,000	\$4,440
Cape Canaveral Air Force Station	60400	TEMPORARY BUILDING NO. 70 (4T)	Active	\$105,120	\$158
Marshall Space Flight Center	4517	LH2 Storage Facility	Mothballed	\$2,915,624	\$325,384
Marshall Space Flight Center	4731	Storage Building	Active	\$46,216	\$2,181
Marshall Space Flight Center	9966	Electrical System	Active	\$303,492	\$35,630
Marshall Space Flight Center	9971	WATER LINE	Active	\$5,799	\$0
Michoud Assembly Facility	403	EQUIPMENT & MATERIAL STORAGE	Active	\$33,721	\$15,771
Santa Susanna Field Laboratory	IO200174	STAND SHELTER-NO.739	Active	\$7,571	\$990
Santa Susanna Field Laboratory	IO200463	SHELTER FOR SHEET METAL BRAKE	Active	\$34,826	
Santa Susanna Field Laboratory	IO200483	WATER LINE FOR STORAGE TANK	Active	\$29,176	

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APPENDIX F. FACILITIES INCREMENTAL CONDITION CHANGE MODEL

FICC ALL FACILITIES	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0		
NASA Total																		213,143,525	362,439,444	492,800,968	591,466,061	733,080,278	913,912,833	1,030,845,311	1,126,382,123	1,211,796,451	1,410,066,086	1,711,980,078	1,867,567,422	1,900,288,155		
Space Operations																46,232,133	131,069,592	193,594,990	268,925,836	301,049,031	367,792,954	455,643,945	521,833,277	575,362,231	661,184,687	729,395,605	951,102,084	979,016,294	1,043,334,286	1,063,224,127		
Johnson Space Center Total																		10,560,998	17,265,708	25,333,578	44,675,656	47,733,487	56,027,136	62,176,557	76,602,738	79,447,556	95,675,214	104,985,499	108,556,144	113,875,007		
Johnson Space Center																	6,947,097	14,288,814	21,135,704	36,793,651	39,593,518	46,558,747	47,747,894	53,189,921	66,849,076	69,511,985	84,213,134	91,947,074	93,262,280	98,499,983		
Ellington Field																						976,732	1,445,318	1,838,069	1,997,937	2,273,307	3,176,321	3,236,986	3,925,832	4,039,735		
Palmdale Industrial Plant Total																			211,414	275,703	538,372							793,142	868,248	935,877		
Palmdale, NASA Industrial Plant																	65,167	86,207					193,598		209,284	221,667	235,892	237,369		255,788		
Palmdale, USAF Industrial Plant																					892,782							1,147,552	1,222,658	1,290,287		
White Sands Test Facility Total																					2,544,113	3,055,604	4,380,327	4,730,402	4,953,784	6,444,658	6,986,637	9,092,814	9,591,887	10,399,412		
White Sands Test Facility																																
WSTF Space Harbor																					2,388,733	2,891,838	3,682,797	4,193,140	4,543,215	4,766,597	5,450,061	6,607,189	7,639,859	14,602,120		
White Sands 1st TDRSS																					4,932	21,548								54,170		
White Sands 2nd TDRSS																							821,756	857,294	936,519		995,324	1,135,351	1,174,861	1,943,485		
Kennedy Space Center Total															26,790,432	36,786,993	75,731,537	77,641,788	105,083,749	145,001,672	151,159,896	177,398,255	254,602,097	269,358,063	348,822,875	457,002,726	465,750,604	477,225,060	496,436,862	508,522,628		
Kennedy Space Center															26,661,743	35,895,247	67,410,471	69,926,229	99,019,659	134,286,042	158,053,475	164,777,196	241,756,242	269,951,352	335,055,113	442,101,181	450,458,250	461,633,019	479,791,287	491,856,746		
Cape Canaveral Air Force Station															1,817,067	4,272,333	5,665,423	6,847,514	7,962,808	8,685,162	8,844,926	8,844,926	9,948,641	11,203,646	12,605,046	13,612,755	15,289,733	16,331,240	16,629,666			
Transoceanic Abort Landing Site Prgm Total																					4,469	6,886	13,452		16,015	18,427	23,251	32,900		36,216		
Morocco Transoceanic Abort Landing Site																					4,469	6,886	13,452		16,015	18,427	23,251	32,900		36,216		
Marshall Space Flight Center Total																		38,971,129	49,067,091	64,618,677	78,068,811	97,237,858	103,257,765	133,006,847	152,607,172	164,507,379	178,139,919	198,976,229	232,075,648	235,834,087	246,125,325	
Marshall Space Flight Center															34,829,515	41,234,985	53,169,754	54,944,778	78,210,273	87,053,776	95,019,203	98,100,711	104,805,162	116,443,891	119,931,629	139,936,209	144,434,408	167,056,012	267,056,012			
Brightman City, Utah																					29,328				33,840		35,193	46,924		46,924		
Michoud Assembly Facility																	7,781,881	16,300,234	18,919,573	25,469,158	29,265,881	38,411,244	39,703,967	44,726,393	56,907,063	63,473,915	78,566,915	83,899,314	166,448,538			
Santa Susanna Field Laboratory															990,472	3,308,658	3,810,550	4,395,284	4,970,279	5,459,942	6,775,191	7,387,627	8,058,277	8,761,002	9,887,385	10,273,230	10,747,188	11,518,013	22,503,941			
Stennis Space Center Total																		32,108,302	32,535,057	54,757,345	66,156,555			106,808,862	108,810,068	134,280,416	150,071,663	159,852,184	169,380,568	192,236,238		
Stennis Space Center															32,108,302	32,535,057			54,757,282	65,802,229			106,783,343	107,560,504	123,580,091	135,372,340	155,111,854	163,262,378	185,198,853			
SSC Tenants																					1,247,543	2,097,793	2,753,888	2,949,520	3,760,929	4,065,367	4,422,590	6,623,086	6,791,072	15,181,952		
Science																					39,565,255	124,911,728	147,128,434	171,434,425	207,948,483	232,032,964	250,349,070	282,094,986	334,496,612	392,758,772	403,245,093	
Ames Research Center Total																					33,663,353	101,717,443	113,882,406	127,599,175	136,029,178	153,903,742	167,571,390	179,074,780	199,123,960	236,340,381	263,501,279	536,631,535
Ames Research Center																					25,396,794	85,863,219			98,028,182	102,745,726	105,947,909	115,919,827	121,080,810	128,499,349	279,231,318	
Crows Landing																															12,870,675	26,043,725
Camp Parks																					44,602				125,609	178,744				614,563	656,436	657,197
Moffett Federal Airfield															8,195,329	15,624,078	25,663,228	33,707,160	39,089,547	46,596,052	52,575,478	56,683,414	66,480,784	79,688,782	88,995,190		108,480,690	110,073,910	115,335,447			
Goddard Space Flight Center Total																							6,342,129	15,665,287	22,004,419	27,633,542	31,665,505	39,515,994	53,419,304	61,336,937	62,859,552	
Goddard Space Flight Center																							40,929,095	45,116,842	47,739,905	51,409,336	55,062,953	58,953,553	68,201,511	70,078,313	73,979,301	
Bilateral Ranging Transponder Prgm Total																						139	166	241							392	
American Samoa Bilateral Ranging Transponder Facility																						103	122	177							289	
Ascension Bilateral Ranging Transponder Facility																						37	44	64							103	
Mobile Laser Site Prgm Total																											1,341,120				1,357,513	
Bear Lake Mobile Laser Site		59,764		71,257	87,334				105,390	108,881																					239,969	
Easter Island Mobile Laser Site																					1,492	1,664	2,452	3,665						4,523		
Ft. Davis Mobile Laser Site		21,090		25,146	26,976				33,136	34,368																					84,683	

Fiscal Year 2004 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

FICC ALL FACILITIES	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0		
Haystack Mobile Laser Site															3,167		4,815	5,003													10,622	
Hawaii Kauai Mobile Laser Site																						277	427	437						757		
Hawaii Maui Mobile Laser Site															1,295		1,969	2,045												4,342		
Kwajalein Mobile Laser Site	38,378			45,758	49,088				60,298	62,540																				154,101		
Monument Peak Mobile Laser Site																						1,016	1,211	1,758						2,871		
Oak Mountain Mobile Laser Site	46,978			56,012	60,087				73,808	76,553																				188,629		
Olay Mountain Mobile Laser Site	75,566			94,867	100,769				125,093	129,656																				319,481		
Owens Valley Mobile Laser Site	26,799			31,952	34,277				42,105	43,670																				107,605		
Platteville Mobile Laser Site	48,378			57,682	61,879				76,009	78,835																				194,252		
Quincy Mobile Laser Site																						2,071	2,469	3,584						5,853		
Tahiti Mobile Laser Site	8,019			9,561	10,256				12,598	13,066																				32,194		
Yarragadee Mobile Laser Site																						2,699	3,218	4,672						7,630		
Spaceflight Tracking/Data Network Prgm Total																						525,901		567,676	626,761	802,806	851,983	942,672	1,044,357	1,101,970		
Hawaii Spaceflight Tracking/Data Network																						525,901		563,277	617,492	779,010	840,757	931,445	1,026,914	1,083,101		
Ponce De Leon Space Flight Tracking/Data Network																					4,021	4,400	5,512	8,507	11,227	11,935	13,817	16,986		18,869		
Space Transportation System Prgm Total		6,782		8,086	8,674				10,655	11,051																				27,229		
Yarragadee Space Transportation System Facility		6,782		8,086	8,674				10,655	11,051																					27,229	
Verylong Baseline Interferometry Prgm Total			38,384		45,766	49,096			60,307	62,549																		154,124	154,247	155,991	159,209	
Cabo San Lucas Verylong Baseline Interferometry Site	1,333			1,589	1,705				2,094	2,172																					5,352	
Cerro Tololo Verylong Baseline Interferometry Site	4,455			5,311	5,698				6,999	7,259																					17,884	
Ensenada Verylong Baseline Interferometry Site	1,047			1,249	1,340				1,646	1,707																					4,205	
Iquique Verylong Baseline Interferometry Site	2,566			3,047	3,269				4,015	4,165																					10,261	
Mazatlan Verylong Baseline Interferometry Site	16,712		19,926	21,376			23,257	27,238																		67,104	68,050	68,848	70,287	72,066		
Point Arguello Verylong Baseline Interferometry Site	11,712			13,964	14,980				18,400	19,084																					47,024	
Santiago Verylong Baseline Interferometry Site																															123	
Socorro Island Verylong Baseline Interferometry	5,722			6,822	7,331				8,938	9,332																					2,294	
Wallops Flight Facility Total																							3,458,020	7,457,286	9,912,055	12,785,634	15,320,526	18,915,918	22,409,903	22,867,629		
Wallops Flight Facility																							3,768,086	7,452,319	9,907,088	12,744,745	15,625,764	18,806,290	22,300,275	22,758,001		
National Scientific Balloon Facility, Palestine, TX																												13,082	28,761	44,887	74,468	
Poker Flat Research Range, Fairbanks, AK																															21,788	335,159
Jet Propulsion Laboratory Total																						10,369,027	14,237,166	22,628,586	29,580,102	37,062,720	41,177,295	46,896,239	51,854,116	60,454,738	68,401,602	
Jet Propulsion Laboratory																						3,338,820	6,758,792	11,130,851	14,207,650	15,799,254	18,007,171	20,811,254	23,580,276	28,392,182	32,496,336	33,535,922
Deep Space Communications Prgm Total																							5,404,558	9,619,629	10,787,614	12,056,580	15,623,817	17,472,640	22,250,304	26,634,615	34,301,967	
Canberra Deep Space Communications Complex, Australia																							1,355,558				4,278,340	4,495,064	4,773,992	5,032,696	5,297,773	
Goldstone, Deep Space																							2,133,328	4,285,976		5,566,313	1,991,343	5,837,210	6,177,682	8,415,891	13,416,227	22,954,338

Fiscal Year 2004 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

FICC ALL FACILITIES	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	
Communications Complex CA																															
Madrid Deep Space Communications Complex, Spain																						467,270	942,962	1,483,676		2,986,751	4,577,742	5,202,717	5,303,069	6,049,856	
Table Mountain Observatory																		58,861	87,072	133,000	144,467	193,515	214,341	251,723	284,072	345,569	377,684		551,846	563,714	
Aeronautics Research																		48,568,673	94,471,552	106,198,791	136,391,807	141,685,332	185,205,926	254,657,377	279,492,812	305,017,238	357,515,828	375,151,291	408,794,932	433,818,935	
Dryden Flight Research Center Total																							1,143,321	2,812,742	4,030,666	4,327,217	4,583,512	5,834,866	7,112,517	7,937,564	
Dryden Flight Research Center																							1,143,321	2,812,742	4,030,666	4,327,217	4,583,512	5,834,866	7,112,517	7,937,564	
Glenn Research Center Total																		21,189,224	34,388,417	58,688,554	78,180,426	127,756,142	129,723,109	142,594,797	157,411,719	178,950,467	199,464,551	227,354,276	230,732,870	250,228,600	
Glenn Research Center																			12,644,919	18,421,155	25,561,223	36,246,534	54,547,007	57,949,707	64,792,867	70,352,143	82,213,648	95,936,269	102,524,797	108,889,747	
Plum Brook Station																868,206	33,127,332	36,649,031	41,504,811	49,139,134	67,693,959	73,209,136	77,057,045	77,882,078	88,044,866	108,366,133	115,828,464	122,364,020	126,985,835	140,255,374	141,338,853
Langley Research Center Total																		34,795,698	54,989,913			79,613,575	90,917,322	99,617,227	101,602,683	123,372,050	134,841,242	143,225,001	154,914,065	172,258,553	175,652,771
Langley Research Center																		34,795,698	54,989,913			79,613,575	90,917,322	99,617,227	101,602,683	123,372,050	134,841,242	143,225,001	154,914,065	172,258,553	175,652,771

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Fiscal Year 2004 NASA-Wide Facilities Condition Assessment and Deferred Maintenance Estimate

FICC FOR ACTIVE FACILITIES	3.1	3.2	3.3	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
NASA Total							112,317,536	220,345,215	317,471,357	394,890,532	498,170,020	635,178,127	740,254,326	805,869,205	963,656,183	1,098,493,248	1,310,776,010	1,423,685,283	1,453,538,701
Space Operations				0	37,565,871	104,291,725	154,076,220	226,813,622	258,228,254	322,229,626	400,337,666	456,269,480	504,818,828	590,104,312	652,288,307	867,340,456	891,195,968	940,522,511	958,850,157
Johnson Space Center Total							10,560,998	17,265,709	24,733,688	43,779,170	46,837,002	55,128,943	61,277,050	75,701,918	78,546,735	94,774,219	104,080,510	107,650,866	112,717,884
Johnson Space Center						6,947,097	13,940,123	20,239,219	35,897,165	38,697,033	45,660,554	46,849,701	52,290,414	65,948,256	68,585,250	83,312,138	91,042,085	92,357,292	97,342,860
Ellington Field											976,732	1,445,318	1,838,069	1,997,937	2,273,307	3,176,321	3,236,986	3,925,832	4,039,735
Palmdale Industrial Plant Total							211,414		275,703		538,372	935,877	935,877	935,877	935,877	1,190,647	1,265,753	935,877	
Palmdale, NASA Industrial Plant								65,167	86,207			193,598		209,284	221,667	235,892	237,369	255,788	255,788
Palmdale, USAF Industrial Plant											282,584						537,354	612,460	680,089
White Sands Test Facility Total									2,544,113	3,055,604	4,380,327	4,730,402	4,953,784	6,444,658	6,986,637	9,092,814	9,591,887	10,399,412	
White Sands Test Facility										2,388,733	2,891,838	3,682,797	4,193,140	4,543,215	4,766,597	5,450,061	6,607,189	7,639,859	7,655,673
WSTF Space Harbor										4,932	21,548	21,548	21,548	21,548	21,548	21,548	21,548	21,548	54,170
White Sands 1st TDRSS											1,943,485	2,765,241	2,800,779	2,880,004	3,886,970	3,945,775	4,085,802	4,125,312	1,943,485
White Sands 2nd TDRSS											39,198	163,826	266,936	785,282	1,199,920	1,216,972	1,288,803	746,084	
Kennedy Space Center Total				26,790,432	34,537,557	71,856,765	73,753,973	100,028,769	139,313,799	144,963,919	170,298,630	247,015,664	261,188,850	339,871,119	446,979,078	455,147,344	465,076,835	484,247,809	496,331,627
Kennedy Space Center				26,661,743	34,861,971	67,410,470	69,307,678	97,340,977	132,950,879	140,397,033	162,141,106	238,755,170	266,078,882	330,755,817	436,951,165	444,543,770	454,776,216	474,279,483	484,957,167
Cape Canaveral Air Force Station						1,195,111	1,387,199	2,280,806	3,996,159	4,427,583	4,761,102	4,920,470	5,819,938	6,716,644	8,141,510	8,809,663	10,118,658	11,114,158	11,338,244
Transoceanic Abort Landing Site Prgm Total									4,469	6,886	13,452	13,452	16,015	18,427	23,251	32,900		36,216	
Morocco Transoceanic Abort Landing Site									4,469	6,886	13,452	13,452	16,015	18,427	23,251	32,900		36,216	
Marshall Space Flight Center Total					4,393,551	35,717,644	46,115,451	58,178,429	67,780,672	77,210,018	87,867,049	113,993,249	123,590,355	133,892,907	147,143,282	168,390,963	181,098,440	189,484,879	
Marshall Space Flight Center					24,063,288	27,411,102	36,032,633	37,093,401	54,190,383	63,033,886	70,012,522	73,092,184	79,004,896	89,628,092	92,913,081	106,410,459	112,591,906	115,912,164	
Brigham City, Utah											29,328		33,840	35,193				46,924	
Michoud Assembly Facility							7,781,881	16,300,233	19,180,058	25,469,157		38,411,243	39,971,177	44,699,431	48,968,211	53,326,884	60,226,371	128,672,932	
Santa Susanna Field Laboratory				1,298,254	1,942,051	2,036,735	2,256,305	3,370,130	3,841,647	4,454,084	5,001,127	5,419,069	6,005,385	7,188,842	7,217,950	7,687,417	8,458,242	15,756,118	
Stennis Space Center Total				2,774,065	27,084,794	27,084,794	46,099,671	53,657,097	88,238,963	101,712,505	113,460,596	132,393,647	140,005,043	148,235,771	157,942,813	160,315,768			
Stennis Space Center				3,573,083	27,084,794	27,084,794	46,094,608	51,259,354	88,213,445	88,973,216	108,140,073	116,864,636	134,880,103	142,224,288	150,865,428	152,680,006			
SSC Tenants									1,247,543	2,097,793	2,940,520	3,760,929	4,065,367	4,422,590	6,623,086	6,791,072	15,181,952		
Science									27,784,138	46,267,656	67,136,905	84,627,983	101,205,332	111,330,115	134,328,497	166,506,850	206,526,319	216,168,660	
Ames Research Center Total							5,264,977	20,051,976	27,735,353	31,132,660	37,452,296	45,981,064	50,467,621	57,136,620	72,535,291	97,757,237	97,757,237	105,439,309	
Ames Research Center									1,993,764	11,832,380	19,473,587	21,398,667	22,999,250	30,372,487	32,501,425	39,227,279	41,679,126	52,944,045	
Crows Landing	13,792	18,786	66,602	248,761					455,735					125,608	175,293			863,495	901,038
Camp Parks										2,477	44,601							611,112	621,189
Moffet Federal Airfield				5,264,977	8,188,304	12,677,500	14,903,799	16,721,305	22,356,221	25,777,299						45,262,799		46,856,019	51,523,037
Goddard Space Flight Center Total											3,715,534	11,122,917	16,798,141	20,205,145	24,910,002	32,565,849	45,221,306	52,738,070	54,217,293
Goddard Space Flight Center											4,295,405	8,483,151	11,091,853	14,758,700	18,400,919	22,291,520	31,539,478	33,415,596	73,919,788
Bilateral Ranging Transponder Prgm Total											139	166	241						392
American Samoa Bilateral Ranging Transponder Facility											103	122	177						289
Ascension Bilateral Ranging Transponder Facility											37	44	64						103
Mobile Laser Site Prgm Total							5,049		12,014	13,299	19,673			29,201					36,598
Bear Lake Mobile Laser Site																			
Easter Island Mobile Laser Site										1,492	1,664	2,452	3,565						4,523
Ft. Davis Mobile Laser Site																			
Haystack Mobile Laser Site				3,167		4,815	5,003												10,622
Hawaii Kauai Mobile Laser Site											277	427	437						757
Hawaii Maui Mobile Laser Site				1,295		1,969	2,045												4,342
Kwajalein Mobile Laser Site																			
Monument Peak Mobile Laser Site											1,016	1,211	1,758						2,871
Oak Mountain Mobile Laser Site																			
Quincy Mobile Laser Site											2,071	2,469	3,584						5,853
Tahiti Mobile Laser Site																			
Yarragadee Mobile Laser Site											2,699	3,218	4,672						7,630
Spaceflight Tracking/Data Network Prgm Total											525,901	567,676	626,761	802,806	851,983	942,672	1,044,357	1,101,970	
Hawaii Spaceflight Tracking/Data Network											525,901	567,676	626,761	802,806	851,983	942,672	1,044,357	1,101,970	
Ponce De Leon Space Flight Tracking/Data Network										4,021	4,400	5,512	8,507	11,227	11,935	13,817	16,986		18,869
Space Transportation System Prgm Total																			
Verylong Baseline Interferometry Prgm Total																			

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FICC FOR ACTIVE FACILITIES	3.1	3.2	3.3	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
Cabo San Lucas Verylong Baseline Interferometry Site																			
Santiago Verylong Baseline Interferometry Site																			123
Socorro Island Verylong Baseline Interferometry																			
Wallops Flight Facility Total												1,389,854	4,027,039	6,672,961	8,212,096	9,596,079	11,891,716	15,348,022	15,762,356
Wallops Flight Facility												1,540,287	4,090,798	6,667,995	8,194,465	9,682,144	14,549,430	15,238,395	15,652,729
National Scientific Balloon Facility, Palestine, TX																13,082	28,761	44,887	74,468
Poker Flat Research Range, Fairbanks, AK																		21,788	35,159
Jet Propulsion Laboratory Total										8,471,404	11,315,761	15,818,569	22,559,059	29,099,522	32,500,076	37,760,887	42,112,234	50,338,075	112,740,991
Jet Propulsion Laboratory										3,419,972	7,792,031	10,868,830	12,460,434	14,668,351	17,472,434	20,241,456	25,053,362	29,157,516	33,535,922
Deep Space Communications Prgm Total											2,551,450	4,586,115		8,889,990	12,163,019	12,606,102	14,782,097	16,882,251	22,412,422
Canberra Deep Space Communications Complex, Australia												1,355,558			4,278,340	4,495,064	4,773,992	5,025,419	5,290,496
Goldstone, Deep Space Communications Complex, CA											2,133,328	2,763,289		3,668,690	4,810,839	4,849,742	5,622,413	9,972,372	11,092,715
Madrid Deep Space Communications Complex, Spain											467,270	942,962	1,483,676		2,986,751	4,577,742	4,719,913	5,282,425	6,029,212
Table Mountain Observatory							58,861	87,072	133,000	144,467	193,515	214,341	251,723	284,072	345,569	377,684		551,846	563,714
Aeronautics Research							3,334,651	38,173,343	69,581,021	82,257,588	95,472,845	109,606,976	158,098,412	179,742,036	184,979,619	223,544,464	234,936,461	265,967,580	278,519,884
Dryden Flight Research Center Total												1,143,321	2,812,741	4,030,666	4,327,029	4,582,688	5,833,946	7,110,465	15,730,177
Dryden Flight Research Center												1,143,321	2,812,741	4,030,666	4,327,029	4,582,688	5,833,946	7,110,465	
Glenn Research Center Total							779,503	13,531,132	22,038,762	27,903,440	42,458,504	65,662,201	75,740,255	77,651,913	84,955,023	100,943,010	117,669,705	124,545,257	133,291,207
Glenn Research Center								12,644,919	18,421,155	25,561,223	36,246,534	54,547,007	57,949,707	64,792,867	70,352,143	82,213,648	95,936,269	102,524,797	215,763,750
Plum Brook Station								1,152,557	3,524,936	5,692,159	11,115,195	12,859,046	14,602,880	18,729,363	19,011,451	22,020,461	23,768,376	24,401,460	
Langley Research Center Total							25,560,544	43,407,821		51,565,824	60,396,730	65,789,591	70,641,358	88,907,026	99,819,183	106,895,724	118,042,721	134,398,566	137,293,275
Langley Research Center							25560544	43407821		52238727	57631588	62483355	80749023	91661180	96737721	109884718	126240563	137,293,275	

APPENDIXG. SITE COORDINATION SHEET WITH SITES VISITED AND POCS

SITE	DATE	SITE COORDINATOR	TEAM	POC
Headquarters	N/A	Don Sapp		Bill Brodt (202) 358-1117
Ames Research Center	12-16 July	Desi Dundics	Desi Dundics Les Dundics Wayne Powell PJ Murray Lisa Freeland Troy Broussard	Sal Navarro (650) 604-6978 dnavarro@mail.arc.nasa.gov Knowlen Knowles (650) 604-0279 Knowlen.F.Knowles@nasa.gov
Moffett Field	12-16 July	Desi Dundics	Desi Dundics Les Dundics	Sal Navarro (650) 604-6978 dnavarro@mail.arc.nasa.gov Knowlen Knowles (650) 604-0279 Knowlen.F.Knowles@nasa.gov Rocci Caringello (650) 603-9506
Camp Parks	12-16 July	Desi Dundics	Desi Dundics Les Dundics	Sal Navarro (650) 604-6978 dnavarro@mail.arc.nasa.gov Knowlen Knowles (650) 604-0279 Knowlen.F.Knowles@nasa.gov
Crows Landing	12-16 July	Desi Dundics	Desi Dundics Les Dundics	Sal Navarro (650) 604-6978 dnavarro@mail.arc.nasa.gov Knowlen Knowles (650) 604-0279 Knowlen.F.Knowles@nasa.gov
Dryden Flight Research Center	2-5 May	Desi Dundics	Desi Dundics Les Dundics	Dan Crowley (661) 276-2287 Daniel.j.crowley@nasa.gov Jennifer E. Terrelonge (661) 276-5977 Jennifer.E.Terrelonge@nasa.gov
Glenn Research Center	6-8 June	Albert Ruiz	Albert Ruiz Desi Dundics Les Dundics Lisa Freeland PJ Murray	Henry.J.Wroblewski (216) 433-2095 Henry.J.Wroblewski@nasa.gov Jim Simak

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SITE	DATE	SITE COORDINATOR	TEAM	POC
				(216) 433-3124 Jimmy.Simek-1@nasa.gov
Plumbrook Station	9-10 June	Desi Dundics	Desi Dundics Les Dundics	Bob Puzak (419) 621-3204 Robert.M.Puzak@nasa.gov Joe Torri (216) 433-5454 joseph.f.torri@grc.nasa.gov Jim Simek (216) 433-5448 Jimmy.Simek-1@nasa.gov
Goddard Space Flight Center	9-12 May	Patrick J. Murray	Albert Ruiz Don Sapp Patrick J. Murray Dan Geldermann Lisa Freeland Brian Chopp	Eugene Mszar (301) 286-1082 Eugene.A.Mszar@nasa.gov Bob Rautenberg (301)286-1138 Robert.C.Rautenberg@nasa.gov Mike Maroof 301-286-4358 Mirza.J.Marooof@nasa.gov
Wallops Flight Facility	23 – 25 May	Dan Geldermann	Patrick J. Murray Brian Chopp Lisa Freeland Dan Gelderman	A.J. Kellam (757) 824-1438 Allie.J.Kellam@nasa.gov Gloria Sullivan (757) 824-1231 Gloria.J.Sullivan@nasa.gov
National Balloon Facility at Palestine, Texas	22 April	Wayne Powell	Wayne Powell	Danny Ball 903-723-8026 dball@master.nsbf.nasa.gov Bernice Merritt (757) 824-1353
Poker Flats (Fairbanks, Alaska)	14 June	Don Sapp	Don Sapp	Greg Walker Gregory.Walker@gi.alaska.edu Ray Martinez (907) 455-2104 martinez@gi.alaska.edu Jackie Dashiell (907) 474-7663 Jackie@gi.alaska.edu Property Officer Geophysical Institute University of Alaska Fairbanks

Fiscal Year 2004 NASA–Wide Facilities Condition Assessment and Deferred Maintenance Estimate

SITE	DATE	SITE COORDINATOR	TEAM	POC
				P.O. Box 757320 Fairbanks, AK 99775-7320 Phone 907-474-7663, FAX 907-474-2473
Hawaii STDN site	28 Apr –2 May	Brian Chopp	Brian Chopp	Bill Wildes (GSFC) (301)614-5967 Clyde Cox (808) 335-6495 Clyde.Cox@honeywell-tsi.com
Ponce De Leon STDN Site including the Shiloh Facility (Located at KSC)	20 June	Blain Nelson	Aaron Anderson Troy Strasters	Jim King (321)861-2210 James.R.King@nasa.gov
Jet Propulsion Laboratory	27 – 30 June	Desi Dundics	Desi Dundics Les Dundics	Mark Gutheinz Mark.A.Gutheinz@jpl.nasa.gov (818) 354-4922 James Black (818) 354-1961 James.E.Black@jpl.nasa.gov Maria-Theresa A. Bantug 818-354-4829 maria-theresa.a.bantug@nasa.gov
Table Mountain	“	“	Desi	Pam Glatfelter glatfelter@tmf.jpl.nasa.gov (760) 249-3650 x 6723
Deep Space Network				Chuck Klose J.C.Klose@jpl.nasa.gov 818-354-7760 Dave Recce David.J.Recce@jpl.nasa.gov 818-354-0064
Goldstone, California	12 – 13 May	Desi Dundics	Desi Les Dundics	Michael Clements M.Clements@gdscc.nasa.gov 760-255-8339 Leroy Abeyta (760) 255-8243 Pedro.Abeyta@jpl.nasa.gov
Canberra, Australia	3 – 8 May	Brian Chopp	Brian Chopp	Cindy Jeffries (DSN Liaison) (818) 354-0076 Cynthia.E.Jeffries@jpl.nasa.gov Tim LeMesurier

Fiscal Year 2004 NASA–Wide Facilities Condition Assessment and Deferred Maintenance Estimate

SITE	DATE	SITE COORDINATOR	TEAM	POC
				<p>TLeMesurier@cdscc.nasa.gov 61-2-6201-7881</p> <p>Peter Churchill Peter.Churchill@jpl.nasa.gov</p> <p>Dave True 61 (0) 2 62017903 dtrue@anbe.cdscc.nasa.gov</p> <p>Neil Newman nasa-rep.australia@csiro.au</p>
Madrid, Spain	23-26 May	Don Sapp	Don Sapp	<p>Cindy Jeffries (DSN Liaison) (818) 354-0076 Cynthia.E.Jeffries@jpl.nasa.gov</p> <p>Gregorio Pasero Site Director GRPasero@lrid.mdsc.nasa.gov</p> <p>Lola Cadierno Madrid Office Assistant Lola.Cadierno@jpl.nasa.gov</p> <p>Angel Martin Site Facilities Director AMartin@lrid.mdsc.nasa.gov</p> <p>Federico Martin Site Projects Engineer FMartin@lrid.mdsc.nasa.gov</p>
Johnson Space Center	2-6 May	Kent Kester	Kent Kester Troy Broussard Keith Burnikell Don Sapp	<p>Mike Scott 281-483-2925 michael.j.scott1@jsc.nasa.gov</p> <p>Perrie Fox 281-483-3157 perri.e.fox@nasa.gov</p> <p>RPAO: Marilyn Blevins (281) 483-3110 marilyn.k.blevins1@jsc.nasa.gov</p>
Ellington Field	"	"	"	"
Sonny Carter Training Facility	"	"	"	"

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SITE	DATE	SITE COORDINATOR	TEAM	POC
White Sands Test Facility	27 June – 1 July	Wayne Powell	Wayne Powell Kent Kester	RPAO: John Bernal (505) 524-5140 JOHNNY.J.BERNAL@nasa.gov RPAO: (Subcontractor support) Jimmy Luhan (505) 524-5425 Fac: John Villegas White Sands Test Facility jvillega@wstf.nasa.gov (505)-524-5189 Fac: Larry Larose El Paso Airport Hanger larry.r.larose@jsc.nasa.gov (915) 637-5223
TDRSS ground stations (2)	“	“	“	John Villegas (505-524-5189) jvillega@wstf.nasa.gov RPAO: Stacy Lewter (At Goddard) (301) 286-6912 RPAO: (Contractor Support at TDRSS) Fac: Harold Brockelsby hbrockelsby@mail.wsc.nasa.gov Station Director TDRSS (505) 527-7001(w) (505) 635-9766 (cell)
Space Harbor alternate shuttle landing site	“			Robert E. Mitchell. Space Harbor Complex robert.e.mitchell@nasa.gov (505) 524-5774
Palmdale	5-6 May	Desi Dundics	Desi Dndics Les Dundics	Tom Franklin (Boeing) (661) 272-4057 (661) 400-5967 (cell)
Kennedy Space Center	1 May - 1 July	Blain Nelson	Troy Strasters Carrie Seringer Mary Chambers Kyle Kendall Tiffany Martin	Jim King (321)861-2210 James.R.King@nasa.gov Leila Taylor 321-867-8492 Leila.G.Taylor@nasa.gov
KSC – Cape Canaveral Air Force Station	“	“	“	“

Fiscal Year 2004 NASA–Wide Facilities Condition Assessment and Deferred Maintenance Estimate

SITE	DATE	SITE COORDINATOR	TEAM	POC
facilities				
Merritt Island STDN Station	“	“	Blain (2)	“
Morocco alternate shuttle landing site		Not to be visited		Dean Schaaf (321) 861-9311 (661) 276-3409 dean.schaaf-1@ksc.nasa.gov
Langley Research Center	27 – 30 June	Lisa Freeland	Lisa Freeland Dan Geldermann Brian Chopp Patrick Murray	Robert (Bob) Charles r.l.charles@larc.nasa.gov 757-864-7271 Angie Brown (757) 864-6857 angela.d.brown@larc.nasa.gov Al Mignogna (757) 864-4930 a.m.mignogna@larc.nasa.gov
Marshall Space Flight Center	25-28 April	Blain Nelson	Mary Chambers Aaron Anderson Tim Gutman Jason Dehler	Jim Durham (256) 544-1394 Jim.E.Durham@msfc.nasa.gov Tim Corn (256) 544-9451 Tim.Corn@nasa.gov Debbie Hendon 256-544-1436 debra.l.hendon@nasa.gov
Michoud Assembly Facility	17 – 19 May	Wayne Powell	Kent Kester Wayne Powell	Ernie Graham (504)257 -2619 Ernest.M.Graham@nasa.gov Michael Newbold (504) 257-1017 Michael.Newbold@maf.nasa.gov Francis Celino 504-257-2629 francis.celino@nasa.gov
Santa Susana Field Laboratory	9 – 11 May	Desi Dundics	Desi Les Dundics	Peter (Mike) Daley (818) 586-9052 peter.m.daley@boeing.com Steve Sitlington (818) 586-2928 steve.c.sitlington@boeing.com
Alliant Techsystems (ATK) (Brigham City UT)	1 June	“	Desi	Cordell Christianson (435) 863-4461 (435) 279-6119 (C)

Fiscal Year 2004 NASA–Wide Facilities Condition Assessment and Deferred Maintenance Estimate

SITE	DATE	SITE COORDINATOR	TEAM	POC
				Cordell.Christianson@atk.com Paul Peterson (435) 863-6916 Paul.Peterson@atk.com
Stennis Space Center	9-12	Blain Nelson	Mario Peralta James Jennings Tom James	Bob Heitzmann (228) 688-3011 Robert.J.Heitzmann@nasa.gov Jim Barnett (228) 688-3323 James.C.Barnett@ssc.nasa.gov Larrie Kelly (228) 688-2380 Larrie.I.Kelly@nasa.gov
Stennis Tenant facilities		"	"	"

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APPENDIX H. DATABASE QUERY AND TABLE EXPLANATIONS

Object Type	Object Name	Query Effect	Object Purpose
Query	Calc A01 Assessment 1	Update	Update the Structural System Percentage in Assessment table to account for systems with rating of zero.
Query	Calc A02 Assessment 2	Update	Calculate and update facility FCI and DM in Assessment table.
Query	Calc A03 SummaryCat 1	Update	Calculate and update CRV Total, DM Total and FacCount in SummaryCat table.
Query	Calc A04 SummaryCat 2	Update	Calculate and update FCI in SummaryCat table.
Query	Calc A05 SummaryHrchy 1	Update	Calculate and update CRV Total, DM Total, ActiveCRV, ActiveDM, InactiveCRV, and InactiveDM in SummaryHrchy table.
Query	Calc A06 SummaryHrchy 2	Update	Calculate and update FCI, ActiveFCI, and InactiveFCI in SummaryHrchy table.
Query	Calc A07 SummaryHrchy 3	Update	Calculate and update StrucCRV, RoofCRV, ExtCRV, IntfCRV, ElecCRV, HvacCRV, PlumbCRV, ConvCRV, and EquipCRV in SummaryHrchy table.
Query	Calc A08 SummaryHrchy 4	Update	Calculate and update StrucSCI, RoofSCI, ExtSCI, IntfSCI, ElecSCI, HvacSCI, PlumbSCI, ConvSCI, and EquipSCI in SummaryHrchy table.
Query	Calc A09 SummaryHrchy 5	Update	Calculate and update StrucDM, RoofDM, ExtDM, IntfDM, ElecDM, HvacDM, PlumbDM, ConvDM, and EquipDM in SummaryHrchy table.
Query	Calc A10 SummaryHrchy 6	Update	Calculate and update CRV Total, DM Total, ActiveCRV, ActiveDM, InactiveCRV, InactiveDM, StrucCRV, RoofCRV, ExtCRV, IntfCRV, ElecCRV, HvacCRV, PlumbCRV, ConvCRV, and EquipCRV in SummaryHrchy table for the NASA Total row.
Query	Calc A11 SummaryHrchy 7	Update	Calculate and update FCI, ActiveFCI, InactiveFCI, StrucSCI, RoofSCI, ExtSCI, IntfSCI, ElecSCI, HvacSCI, PlumbSCI, ConvSCI, and EquipSCI in SummaryHrchy table for the NASA Total row.
Query	Calc A12 SummaryHrchy 8	Update	Calculate and update StrucDM, RoofDM, ExtDM, IntfDM, ElecDM, HvacDM, PlumbDM, ConvDM, and EquipDM in SummaryHrchy table for the NASA Total row.
Query	Calc Axx Join 1	View	Provide a Join between Perc_CRV_Sys and Assessment tables for calculating DM values in the SummaryHrchy table.
Query	Calc B01 SummaryCat Analysis 1	Update	Calculate and update CRV Total, DM Total, and FacCount in SummaryCat table.
Query	Calc B02 SummaryCat Analysis 2	Update	Calculate and update FCI in SummaryCat table.
Query	Calc C01 SummaryCat Delta	Update	Calculate and update DeltaCRV, CompFY FCI, CurrFY FCI, Delta FCI, CompFY DM, CurrFY DM, DeltaDM, Delta% in SummaryCat Delta table.
Query	Calc Cxx Join 1	View	Provide a Join for the Compare FY DM values from the SummaryCat table for the SummaryCat Delta table calculations.

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Object Type	Object Name	Query Effect	Object Purpose
Query	Calc Cxx Join 2	View	Provide a Join for the Current FY DM values from the SummaryCat table for the SummaryCat Delta table calculations.
Query	Calc D01 SummaryHrchy Delta	Update	Calculate and update CompFY DM, CurrFY Dm, DeltaDM, Delta%, CompFY FCI, CurrFY FCI, DeltaFCI, StrucDM%Delta, RoofDM%Delta, ExtDM%Delta, IntfDM%Delta, ElecDM%Delta, HvacDM%Delta, PlumbDM%Delta, ConvDM%Delta, EquipDM%Delta, StrucSCIDelta, RoofSCIDelta, ExtS
Query	Calc Dxx Join 1	View	Provide a Join for the Compare FY DM values from the SummaryHrchy table for the SummaryHrchy Delta table calculations.
Query	Calc Dxx Join 2	View	Provide a Join for the Current FY DM values from the SummaryHrchy table for the SummaryHrchy Delta table calculations.
Query	Calc E01 SummaryOpsFac 1	Update	Calculate and update CRV Total, FCI, DM Total, and FacCount in the SummaryOpsFac table.
Query	Calc E02 SummaryOpsFac 2	Update	Calculate and update CRV Total, FCI, DM Total, and FacCount in the SummaryOpsFac table for the Operations Facilities Total line.
Query	Calc E03 SummaryRnDFac 1	Update	Calculate and update CRV Total, FCI, DM Total, and FacCount in the SummaryRnDFac table.
Query	Calc E04 SummaryRnDFac 2	Update	Calculate and update CRV Total, FCI, DM Total, and FacCount in the SummaryRnDFac table for the R&D Facilities Total line.
Query	Calc F01 SummaryPgms 1	Update	Calculate and update CRV Total, DM Total, ActiveCRV, ActiveDM, InactiveCRV, and InactiveDM in SummaryPgms table.
Query	Calc F02 SummaryHrchy 2	Update	Calculate and update FCI, ActiveFCI, and InactiveFCI in SummaryPgms table.
Query	Calc F03 SummaryHrchy 3	Update	Calculate and update StrucCRV, RoofCRV, ExtCRV, IntfCRV, ElecCRV, HvacCRV, PlumbCRV, ConvCRV, and EquipCRV in SummaryPgms table.
Query	Calc F04 SummaryHrchy 4	Update	Calculate and update StrucSCI, RoofSCI, ExtSCI, IntfSCI, ElecSCI, HvacSCI, PlumbSCI, ConvSCI, and EquipSCI in SummaryPgms table.
Query	Calc F05 SummaryHrchy 5	Update	Calculate and update StrucDM, RoofDM, ExtDM, IntfDM, ElecDM, HvacDM, PlumbDM, ConvDM, and EquipDM in SummaryPgms table.
Query	Calc Fxx Join 1	View	Provide a Join between Perc_CRV_Sys and Assessment tables for calculating DM values in the SummaryPgms table.
Query	Flat File View	View	Provide a Join between Facilities and Assessment tables to show assessment data.
Query	FYCompare	View	Provide a Join between Assessment and FY tables to show the Compare FY assessment ratings.
Query	FYComparison	View	Provide a Join between Facilities table and FYCompare and FYCurrent queries to allow comparison of Compare and Current FY assessment ratings side by side.

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Object Type	Object Name	Query Effect	Object Purpose
Query	FYCurrent	View	Provide a Join between Assessment and FY tables to show the Current FY assessment ratings.
Query	FYDeltaScreen	View	Provide a Join between Facilities table and FYCompare and FYCurrent queries to allow screen records by the absolute difference between Compare and Current FY assessment ratings.
Query	RPI Issues Count	View	Provide a View to count the RPI Issues by Issue type.
Query	RPI Issues View	View	Provide a View of RPI Issues by Facility.
Table	Assessment	NA	Contains facility RPI data and assessment ratings by FY.
Table	BMARData	NA	Contains BMAR data by FY and hierarchy.
Table	DM_Categories	NA	Contains DM Categories and the associated descriptions.
Table	Documentation Fields	NA	Contains documentation on fields in the DM Database tables.
Table	Documentation Objects	NA	Contains documentation on queries and tables in the DM Database.
Table	End_Codes	NA	Contains codes and associated description for indicating why rating assessments are ceased on a particular facility.
Table	Facilities	NA	Contains facility RPI data and associated hierarchical and description data.
Table	FY	NA	Contains records to indicate fiscal years that have a DM assessment and various flags pertaining to those fiscal years.
Table	FYConstants	NA	Contains constants used in DM calculations by fiscal year of DM assessment.
Table	Hierarchy	NA	Contains hierarchy data for NASA RPI.
Table	NASA_Class	NA	Contains mapping of NASA Class code to DM Category code.
Table	Perc_CRV_Cond	NA	Contains percent to assessment condition mapping for the nine assessment systems.
Table	Perc_CRV_Sys	NA	Contains percent to assessment system mapping for the DM Categories.
Table	Programs	NA	Contains information on Program use for facilities.
Table	RPI_Codes	NA	Contains codes and associated description for indicating issues or problems in the RPI data for facilities.
Table	RPI_Issues	NA	Contains RPI Issues codes mapped to individual facilities.
Table	SummaryCat	NA	Contains summarized or totaled DM calculations by DM Categories.
Table	SummaryCat Analysis	NA	Contains summarized or totaled DM calculations for a specific DM Category between two assessment years.
Table	SummaryCat Delta	NA	Contains comparison between two assessment years of summarized or totaled DM calculations by DM Categories.
Table	SummaryHrchy	NA	Contains summarized or totaled DM calculations by RPI Hierarchy.

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Object Type	Object Name	Query Effect	Object Purpose
Table	SummaryHrchy Delta	NA	Contains comparison between two assessment years of summarized or totaled DM calculations by RPI Hierarchy.
Table	SummaryOpsFac	NA	Contains summarized or totaled DM calculations for a subset of DM Categories representing Operations Facilities.
Table	SummaryPgms	NA	Contains summarized or totaled DM calculations by NASA Program.
Table	SummaryRnDFac	NA	Contains summarized or totaled DM calculations for a subset of DM Categories representing Research and Development Facilities.

APPENDIX I. NASA WHITE PAPER ON THE DEFERRED MAINTENANCE ESTIMATION METHOD

Deferred Maintenance/Condition Assessment Discussion Paper

Also known as Backlog of Maintenance and Repair (BMAR)

By Charles B. Pittinger, Jr., P.E.
Facilities Engineering Division
National Aeronautics & Space Administration HQs
4/8/1999
(Revised 8/18/1999)

Definition:

Deferred Maintenance – is maintenance that was not performed when it should have been or was scheduled to be and which, therefore, is put off or delayed for a future period. (Federal Accounting Standards Advisory Board (FASAB), Statement of Recommended Accounting Standards Number 6, September 1995)

Deferred maintenance DOES NOT include alterations and modifications, expansion in size or capability, work to address major technical or functional obsolescence, or other types of “new work.”

Unique to the Public Sector:

Generally, recognized leading companies in the private sector find “deferred maintenance” to be a foreign term or concept. In companies like 3M and Du Pont, facilities are well maintained and kept in an excellent state of repair as long as product lines are profitable and the rate of return on facilities investments are reasonable. If a facility is planned to be shut down, then resources may intentionally be withheld.

In the public sector, life-cycle cost, rate of return on investment, and cost-avoidances are not normally the most significant determining factors in facilities investment decisions. As budgets are tightened, the first thought is to protect “mission” as much as possible, and facilities investments are frequently deferred. Most maintenance actions can be deferred without immediate failure or observable deterioration by the uninitiated. But repetitive deferrals of many maintenance actions over time take a significant toll in the originally expected useful lifetime of facilities and equipment. A frequent refrain heard by facilities personnel during budget times are “Can you make it last for another year?” The answer is almost always “Yes.”

Uses:

Deferred maintenance (or BMAR) has been used at least for decades by the Department of Defense, other agencies, Congress, and other governmental units. It has been used to indicate the degree of facilities work that has been deferred for budgetary reasons and that is required to restore the facilities to good usable condition that they were originally intended for. The degree

of deferred maintenance is also an indicator of the quality of the stewardship of public assets provided by the using agencies. When tracked and trended over time with other basic facilities performance metrics such as the Annual Cost of Maintenance and Repair, and Facility Reliability and/or Facility Availability, the effectiveness of a maintenance and repair program can be evaluated. Additionally, FASAB has recently seized upon deferred maintenance as a tool to reflect the degree of unfunded liability due to agency underfunding of facilities maintenance and repair in their annual Chief Financial Officer’s reports.

Problem Statement:

In concept, the determination and use of deferred maintenance data is straightforward and simple. In execution, it is complex, time consuming, very expensive to gather, always out of date, and rarely complete. Since determining deferred maintenance is generally an unfunded requirement, along with many others typically, minimum attention and resources are directed towards it (i.e., resources invested in it typically do not generate any return in funds). A case in point, is the attention that Congress directed to deferred maintenance in the Department of Defense in the 1980’s. Significant funding was spent on facilities and infrastructure over most of a decade. Shortly thereafter, Congress inquired as to the level of deferred maintenance in DOD – rather than decline from the investment, it grew significantly. As a result of funding being made available for deferred maintenance, local investments were made to identify MORE deferred maintenance. In other words, the full extent of deferred maintenance had never been identified previously due to the time and costs involved in the traditional processes used to determine it. Congress has paid additional interest in deferred maintenance in the years following at DOD and in other agencies, but the root-cause problem still exists today.

Traditional Method of Determining Deferred Maintenance:

Most past efforts to identify deferred maintenance have relied on traditional engineering methods. First, individual facilities were inspected by a team of skilled craftsmen and/or engineering consultants to identify and document individual deficiencies in facilities and equipment, systems, and structure (Condition Assessment). Second, these deficiencies are then entered into some sort of database or spreadsheet. Third, industry or custom estimating guides are used to calculate the repair cost for each individual deficiency. Fourth, the repair costs are sorted and organized in some fashion and then summed. Additionally, this database then needs to be updated regularly to reflect additional deferred maintenance, deferred maintenance completed by repair actions, and adjusted for inflation from time to time.

Although simple in concept, this process can easily involve MILLIONS of inspections and calculations for an agency of any size, and is cost-prohibitive. The data is also subject to rapid aging.

The Need:

Federal agencies have a need for a simplified system of documenting deferred maintenance. It must be a “breakthrough” method based on creative thinking. The system must be minimally

resource intensive. It must be brief (as compared to past practices), and it must be auditable to support the agencies' Chief Financial Officers annual reports.

Ideally, if a group of agencies were to settle on a streamlined approach to determining deferred maintenance and document the method to be used, a defacto standard would then exist. Then groups such as the General Accounting Office, and private sector accounting firms would use the document as a reference and a measure of standard of practice.

NASA as an Example:

NASA has a fairly reasonable estimate of deferred maintenance determined by the traditional method outlined above, and it suits the purpose for its intended use (Macro-level trending and benchmarking with other agencies and activities). But deferred maintenance has been too expensive to collect, too expensive to repeat regularly, and has never been 100% completed at all locations. It has not received a lot of attention in the past due to being an unfunded requirement. NASA uses it as a facilities metric to compare to annual funding for maintenance and repair, which are trended over time as a macro metric. Like at other agencies, the FASAB requirement has brought heightened interest in the deferred maintenance data at NASA, but no additional funds for it.

One Proposed Method:

For the purpose of initiating wide discussion and brainstorming new methods to determine deferred maintenance, the following concept is offered:

Assumptions:

1. Condition assessment performed by systems (not individual components) and by entire facility (overall system average).
2. Simple condition levels.
3. Limited number of systems to assess.
4. Parametric estimating based on Current Replacement Value (CRV).

CRV – Current Replacement Value (Capitalized Book Value inflated to present dollars)

Condition Assessment Levels:

Repair Cost:

5 New/Only normal PM required	5% of CRV
4 Some repairs needed, overall system generally functional	20% of CRV
3 Many repairs needed, limited functionality or availability	50% of CRV
2 May be functional, but obsolete or does not meet codes	100% of CRV
1 Not operational, or unsafe	100% of CRV

(Range of CRV by Condition Level subject to study)

Major Systems: % of Facility CRV:
 (% To be adjusted for special classes of facilities**)

*Architectural – Doors, windows, finishes, tile, carpeting	5
*Roof – Membrane, flashings, gutters & downspouts	10
*Electrical – Electrical distribution, transformers, overcurrent, fire detection, motors, inverters, UCS/EMCS, alarms, PA systems	15
*Plumbing – Water, wastewater, fire sprinklers, HP air & gases, valves, pumps	15
*HVAC – Heating, ventilation, and air-conditioning	25
*Structural – Structure, cranes, elevators	<u>30</u>
	100%
Site – Fencing, walks, curbs, paving, drainage, signage	100
Utility Systems – Exterior	100

(Range of CRV by Major System subject to study)

- * These systems add up to 100% of CRV in discrete facilities (inside the 5-foot line of the building)
- ** % distribution to have standard adjustments for antenna, launch platforms, wind tunnels, space environmental simulators, and other special use facilities.

Example for One Facility (Hypothetical):

Office and Laboratory Facility – 15 years old. Building has a new roof and excellent interior finishes. The electrical systems, plumbing systems, and structure are adequate. The air-conditioning and heating systems have been problematic since new and the occupants are unhappy with the temperatures and air changes.

CRV \$4,500,000 Building
 \$250,000 Site Work

Exterior utility systems considered as a separate facility

Condition Assessment:

System	Level	%CRV	%Facility	
Architectural	5	(0.05)	(0.05)	0.0025
Roof	5	(0.05)	(0.10)	0.0050
Electrical	4	(0.20)	(0.15)	0.0300
Plumbing	4	(0.20)	(0.15)	0.0300
HVAC	3	(0.50)	(0.25)	0.1250
Structural	4	(0.20)	(0.30)	<u>0.0600</u>
				0.2525
Site	4	(0.20)	(1)	0.2000
Utility Systems – Exterior	NA	(NA)	(NA)	NA

% CRV

Systems 0.2525 * \$4,500,000 = \$1,136,250

Site 0.2000 * \$250,000 = \$50,000

\$1,186,250 Deferred Maintenance

- Condition levels are simple enough that they should be repeatable by average maintenance personnel after a brief walk-through of the facility.
- Condition levels are tied to a fixed percentage of facility current replacement value.
- Facility systems values are tied to a fixed percentage of the overall facility CRV (summing to 1 or 100%).
- Deferred maintenance calculation then becomes just a simple parametric multiplication.

Final Note:

The method outlined above is not meant to be either a construction estimate or a budget estimate to carry out projects. The intended use is as a facility performance metric to be compared and trended against other commonly used facilities metrics. This parametric estimate is accurate enough for its intended purpose while utilizing a standard approach in a simplified manner that should allow full application at a tolerable cost. For the purposes of metric trending and FASAB reporting we must not fall in the typical engineering trap of making calculations to the fourth decimal place, rather than viewing this as a MACRO level indicator number.

8/18/1999 Revision:

Inventory To Perform Condition Assessment On:

To further reduce the cost of gathering deferred maintenance data, and in the spirit of the “Pareto Rule” (Securing 80% of the result for 20% of the cost, etc.), it would make sense to consider inspecting a smaller group of facilities that represent the majority of an agency’s CRV and then extrapolating for the remainder of the assets. As an example at NASA, the facility inventory consists of over 6,000 facilities (Buildings and structures). From the 1997 Facilities Investment Study, 675 of NASA’s most expensive facilities (CRV of \$4 million and over) equate to 88% of NASA’s CRV of \$17 billion.

Acceptable Level of Deferred Maintenance:

It is not reasonable to reduce deferred maintenance to zero. Doing so would possibly imply to some that maintenance and repair activities are over-funded. A reasonable level of backlog at the NASA centers has been proposed to be an amount equal to the annual recurring maintenance and repair spending (Not including operations or new facility requirements). This level of backlog would allow the capital program to concentrate on renewal of the asset base while incorporating the execution of the backlog of deferred maintenance in an orderly fashion in facility renewal planning.

Proposed Redefinition of Deferred Maintenance:

Although we refer to maintenance in discussing deferred maintenance, most parties assume it also to contain **REPAIR** (Both capital and non-capital, but no alterations or new requirements, etc.). There generally is very little pure maintenance that exists in Deferred Maintenance/BMAR. You might find peeling paint as an example of deferred maintenance, but the larger work content turns into repair eventually when maintenance is deferred for a long enough period of time. As an example, if the peeling paint is deferred for a long enough time, the underlying metal building skin will corrode and perforate resulting in a repair requirement to re-skin the structure. If we changed the name to **Deferred Maintenance and Repair - DMAR** (using the same FASAB definition), there would be less confusion over the work content.