

NIST Facilities Update: 2005

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Background

- NIST facilities are aging. Majority of buildings constructed in the 1950's (Boulder) and 1960's (Gaithersburg).
- Long-standing concerns about inadequacy of facilities validated by several studies:
 - * 1992 – SHG, Inc.
 - * 1996 – HDR, Inc.
 - * 1997 – SHG, Inc.
 - * 1997 – Booz-Allen & Hamilton, Inc.
 - * 2004 – Hanscomb, Faithful & Gould
- NIST developed an evolving series of facilities plans most recently ...

... the *2004 Facilities Improvement Plan*, dated June 2004, and the February 2005 Addendum.

The Plan addressed three equally important priorities:

- * New Construction
- * Building Renovations
- * Facility Maintenance

Our Status ...

- ACSL occupied in 1999.
- AML construction completed and building occupied.
- Phase I construction of Boulder Central Utility Plant (CUP) is 95% completed and contract for Phase II Distribution Tunnel to be awarded by June 2005.
- The buried distribution line and the high speed switch for the Boulder Primary Electric Service has been installed. Uninterruptible Power Supply System being manufactured and will be installed mid-July 2005.

Our Status ... (con't)

- Renovation of Gaithersburg Building 222 (Chemistry) underway as a phased project.
- AML Operation and Maintenance funded but not at the requested level.
- Safety, Capacity, Maintenance, and Major Repair (SCMMR) account funded at previous levels. No additional funding to address our increasing maintenance backlog.

We still need ... *Building Renovations*

... 67% of NIST laboratory space now fails to meet program needs (1997 SHG Retrace Study).

Boulder (FY 06-13)

- Building 4
- Building 1 (Radio)
- Wings 3, 4, 5 & 6
- Spine

Gaithersburg (FY 05-13)

- Building 222 (Chemistry)
- NIST North Relocation
- Building 220 (Metrology)
- Building 221 (Physics)

Construction & Major Renovation*

President's Request vs. Appropriation (\$M)

PROJECT	FY 2003		FY 2004		FY 2005		FY 2006
	Request	Approp.	Request	Approp.	Request	Approp.	Request
Central Utility Plant (B)	11.8	8.8	10.8	9.9	16.4	6.9	9.4
Primary Electric (B)	5.5	2.3	0.0	2.6	0.0	0.0	0.0
Building 4 (B)	0.0	0.0	4.0	0.0	1.8	0.0	4.0
Building 1 (B)	0.0	0.0	6.5	0.0	6.5	0.0	6.5
GPL Renovation (G)	0.0	0.0	3.4	3.4	0.0	0.0	0.0
NIST North Relocation (G)	0.0	0.0	0.0	0.0	1.0	0.0	4.0

* Excludes the AML.

Recalling the NIST Facility Condition Assessment

- Hanscomb conducted the most recent Facilities Condition Assessment of the NIST Gaithersburg campus (FY04)
 - * Reviewed previous studies and plans
 - * Conducted on-site inspection of each building
 - * Developed cost estimate of deficiencies
 - * Prepared 5-year Project Execution Plan to address the most critical deficiencies first

Bottom Line: Condition Poor

- Study identified \$458 million in facility deficiencies.
- Study did not document the Boulder campus, but *the Boulder buildings are older!*
- The majority of our mechanical, electrical, and architectural systems are past their expected life and are in the failure mode.

SCMMR Funding

- Facility infrastructure improvement projects are primarily funded with Safety, Capacity, Maintenance and Major Repairs (SCMMR).
- Facility management experts recommend an *annual maintenance budget* for a high-tech establishment (such as NIST) at 2% - 4%. Hanscomb study recommends **3% per annum**.
- For FY 2006, this implies SCMMR budget = **\$52.7 million**.
- **SCMMR Funding has major gaps ...**

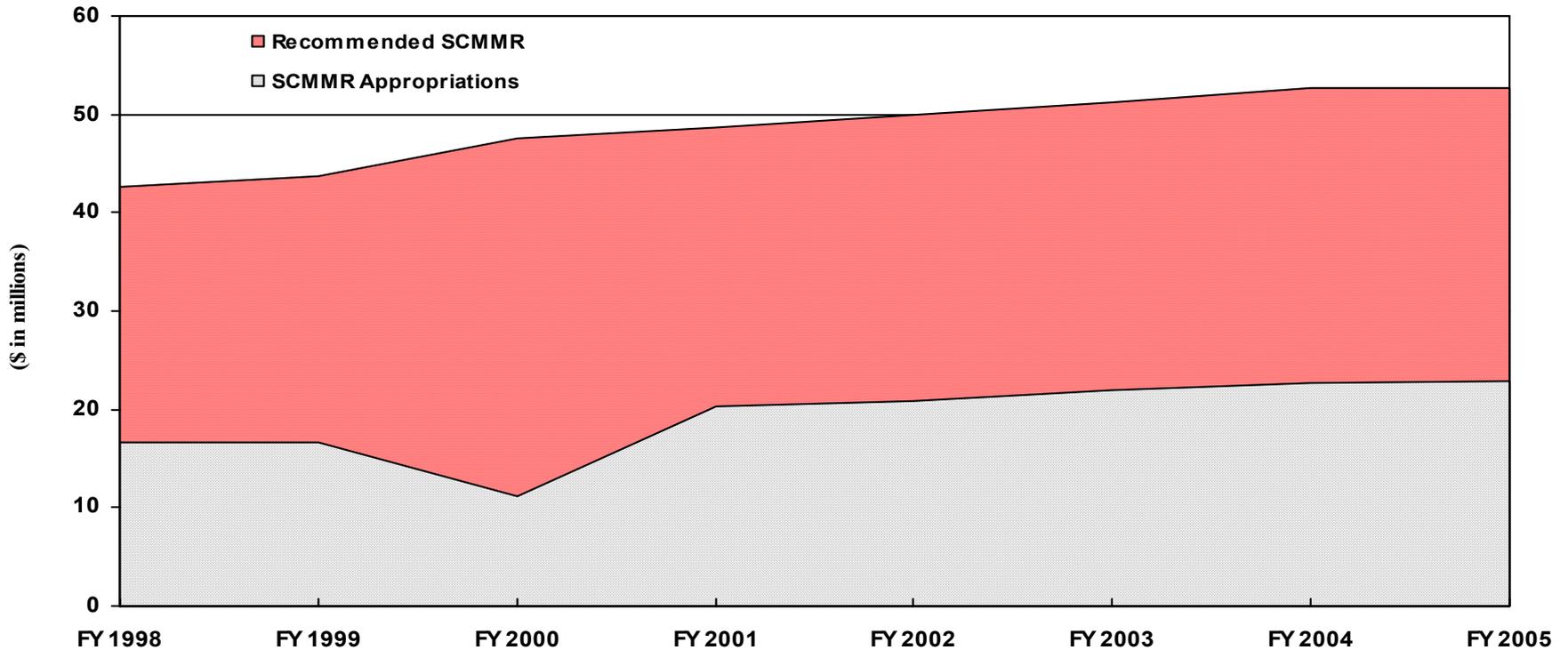
... past SCMMR Funding

<u>FY</u>	<u>Appropriation (\$K)</u>
1998	16,692
1999	16,714
2000	11,142
2001	20,334
2002	20,872
2003	22,050
2004	22,612
2005	22,693
2006	31,598*

*Requested amount; does not include AML maintenance.

NIST SCMMR funding has never come close to the industry “best practice” recommendation ...

GAP in NIST SCMMR Funding



...even with the requested SCMMR increase to \$31.6 million in FY 06.

This funding trend continues ...

- AML Annual Utility and Operation & Maintenance Costs:

	<u>Est. Cost</u>	<u>Base Received</u>	<u>Req. FY06 Base Increase</u>
Utility	\$3.9M	\$3.9M	*
O&M	\$5.0M	\$1.6M	\$3.4M

* \$2M requested due to utility rate increase; AML also contributes to this increase.

- More expensive outsourcing has become necessary due to the skill sets required for new technology as the site modernizes.

Summary

- Research needs of the 21st century require modern facilities. The majority of our 40 and 50 year old facilities and infrastructure do not meet this need.
- The VCAT played a major role:
 - * In helping us focus on analyzing facility needs in terms of the Nation's S&T needs.
 - * In pushing hard for the ACSL, the AML, and the CUP.
- We have made huge progress in meeting the facilities challenge, but we have a long way to do.