Facilities Overview: VCAT February 2020

Skip Vaughn, Director, Office of Facilities & Property Management

February 11, 2020
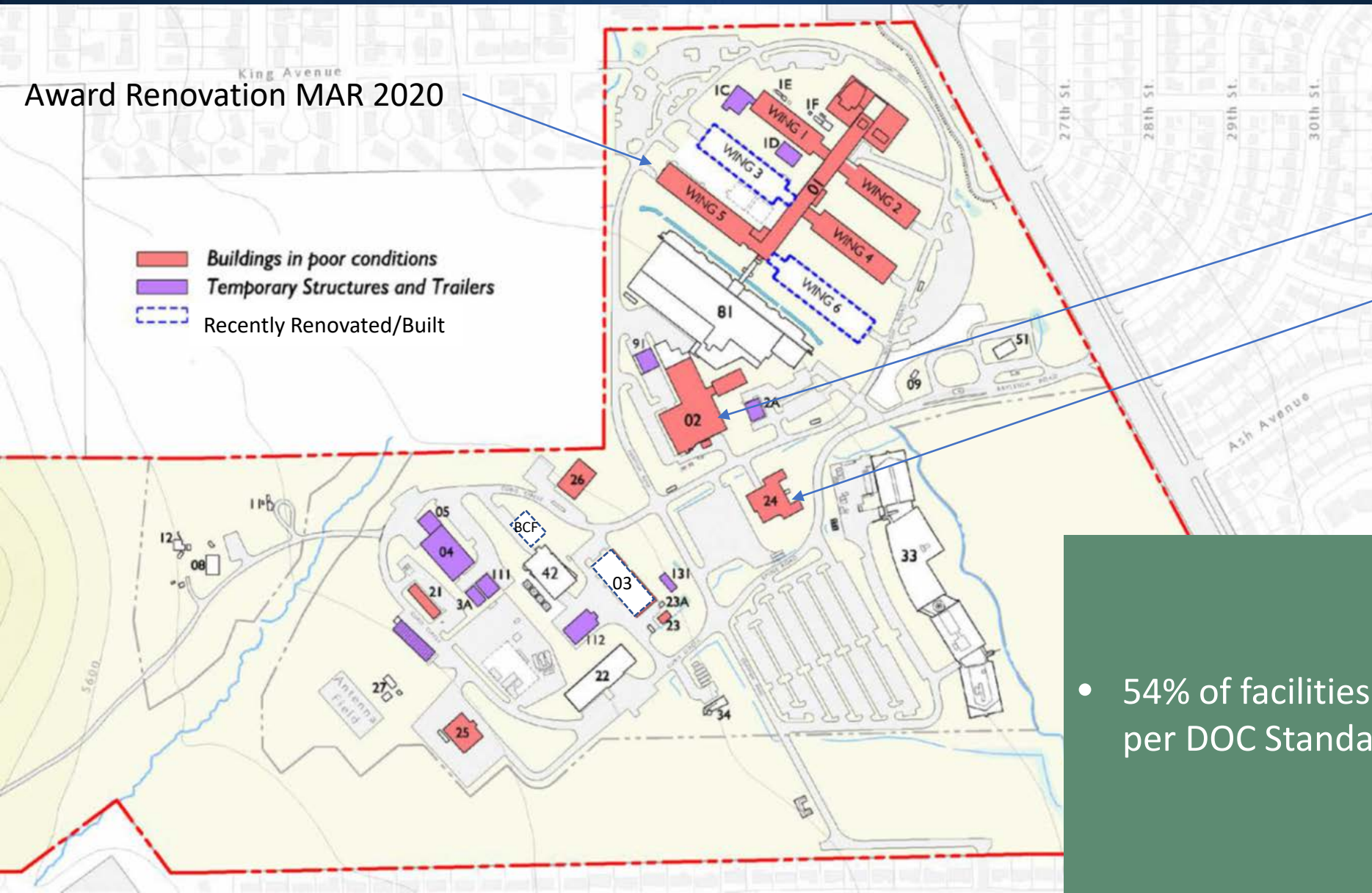
NIST National Institute of Standards and Technology
U.S. Department of Commerce

OFPM
Office of Facilities
& Property Management

Facilities Overview

- 50+ year old campus facilities

- ~58% of facilities are in poor to critical condition per DOC standards.

- $774.4M in deferred maintenance (Expected to increase significantly this year due to full inspections underway, being completed by May 2020.)

- ~$1,500M in capital projects required

- Major utility infrastructure failures increasing

- Older labs unable to support controlled environments required for advanced research

- 4.5M SF of buildings; 27% added in the last 20 years w/o O&M funding
- 97 buildings & structures; 26 added or altered in the last 20 years

Facilities Overview-Boulder

NIST

Award Renovation MAR 2020

Buildings in poor conditions
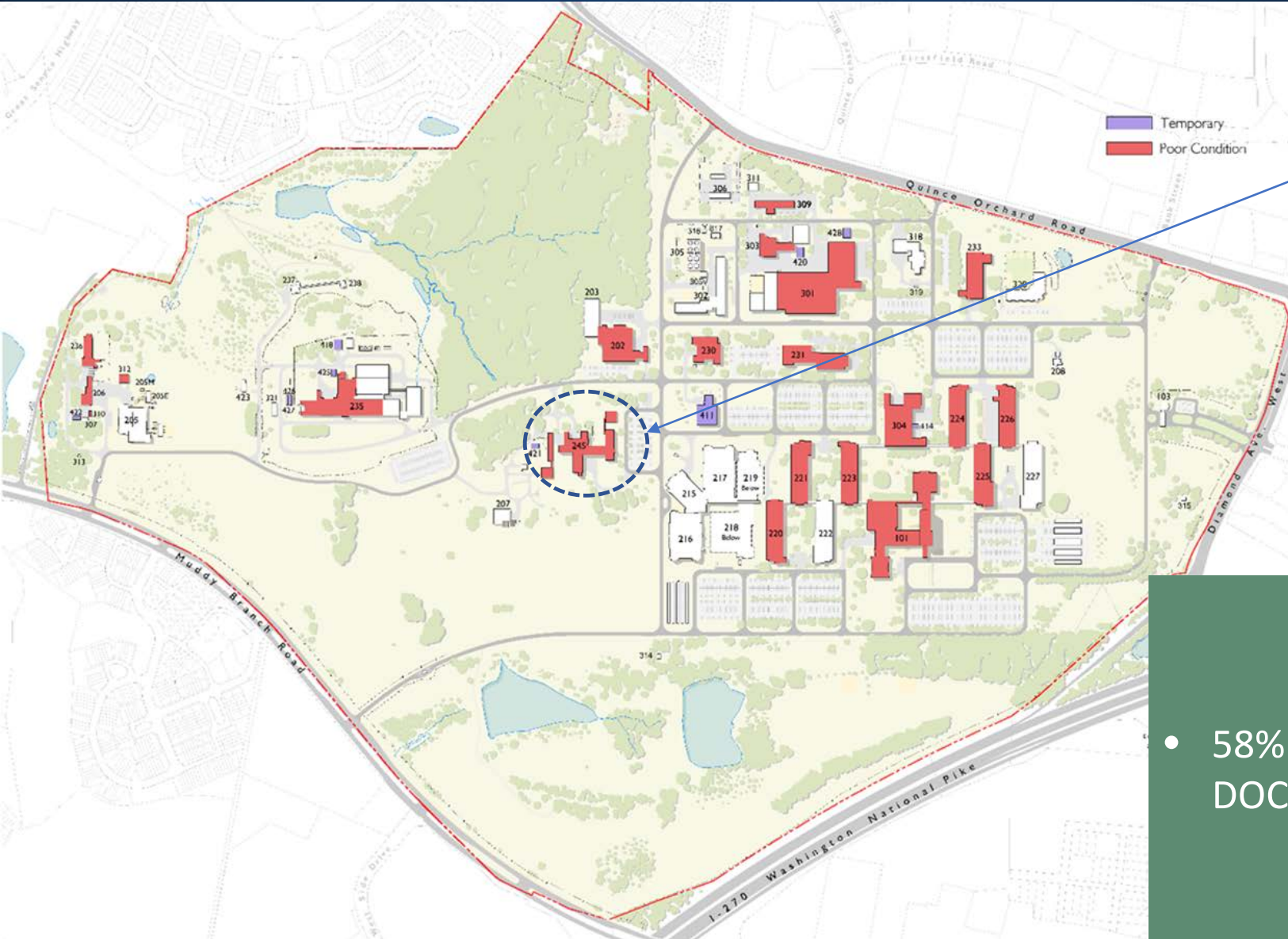Temporary Structures and Trailers
Recently Renovated/Built

FCI: 29

FCI: - 8

- 54% of facilities in poor to critical condition per DOC Standards
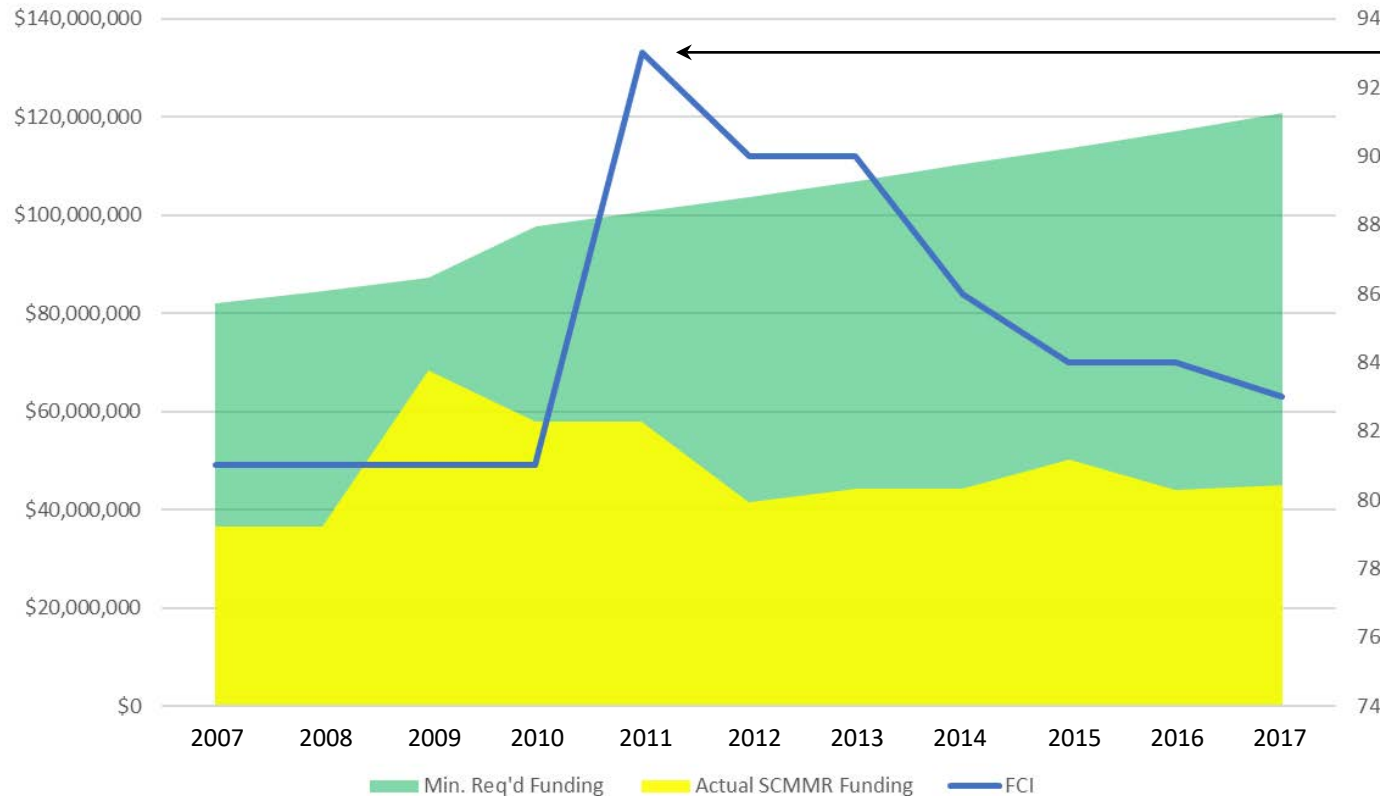
Facilities Overview-Gaithersburg

Under Renovation

- 58% of facilities in port to critical condition per DOC Standards

How we got here & Impacts

Funding Impacts on FCI

Spike due to $187M in ARRA funded new construction & nearly double SCMMR budget from previous years.

Legend: Min. Req'd Funding | Actual SCMMR Funding | FCI

Note: A similar graph was submitted to Congress in a 2004 report covering 1998-2005 is very similar to this one.

- 27% increase in area of bldg.'s in last 20 years with relatively flat budget.
- Ave. 15% decline in FCI over last 5 years for bldgs not renovated or built in last 20 years.
- $598M cumulative underfunding for maintenance over 10 years

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IT Infrastructure Overview

2018 State of NIST IT Networks
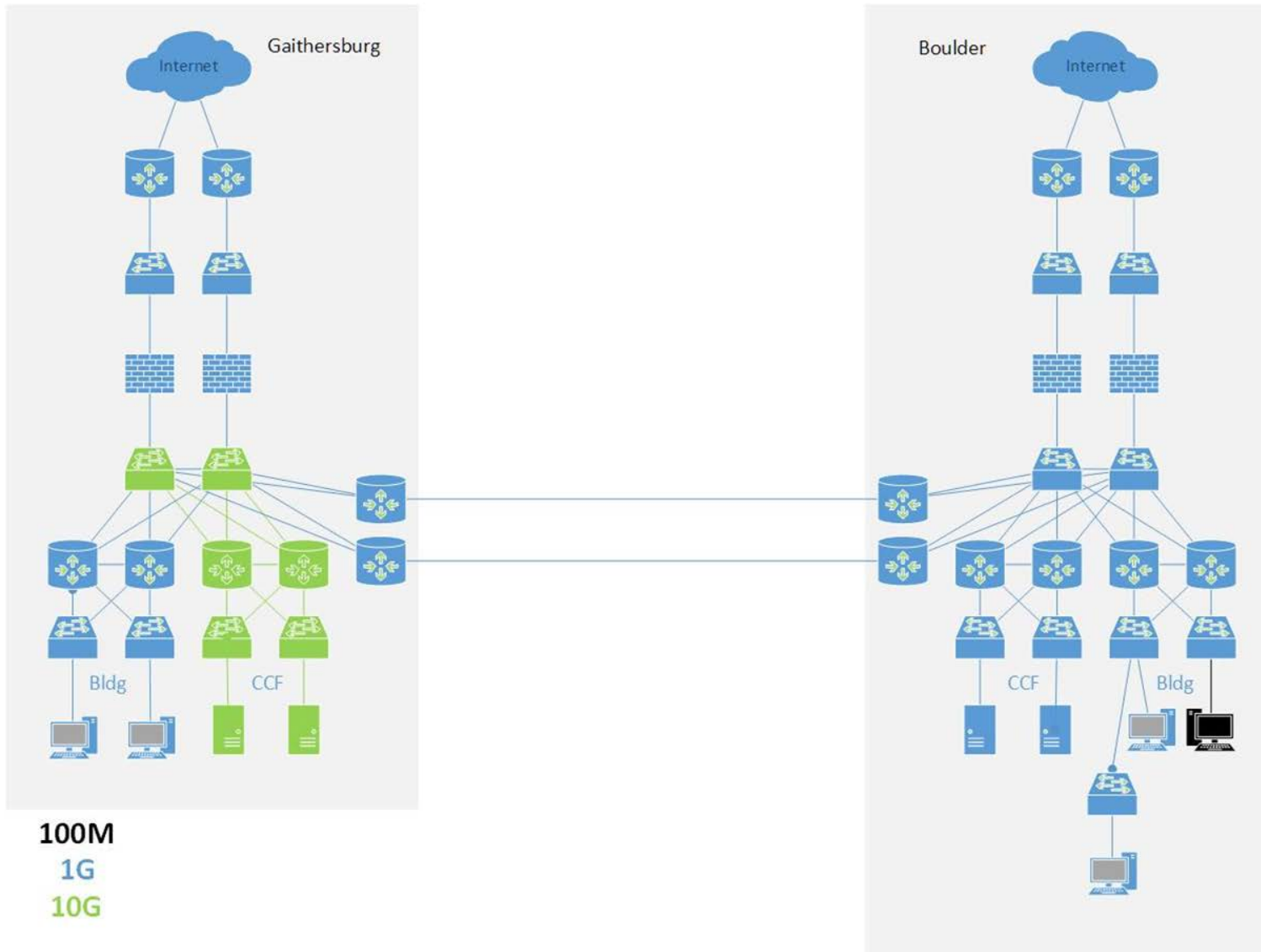
- Fall 2018 decision by NIST leadership to add IT infrastructure upgrades to backlog as utility service similar to other utilities.

- $40M in IT infrastructure upgrades required. (FY18 estimate)

- Data transmission needs for today's science requires faster and faster network speeds.

- Storage capacity requirements are increasing exponentially. Petabyte storage requirements today vs terabyte storage levels.

- Ex's: AI, IoT, & Quantum Engineering

- Boulder staff currently hand carry hard drives between locations due to an inability to transmit data files.

IT Infrastructure Overview

Future State goal for NIST IT Networks
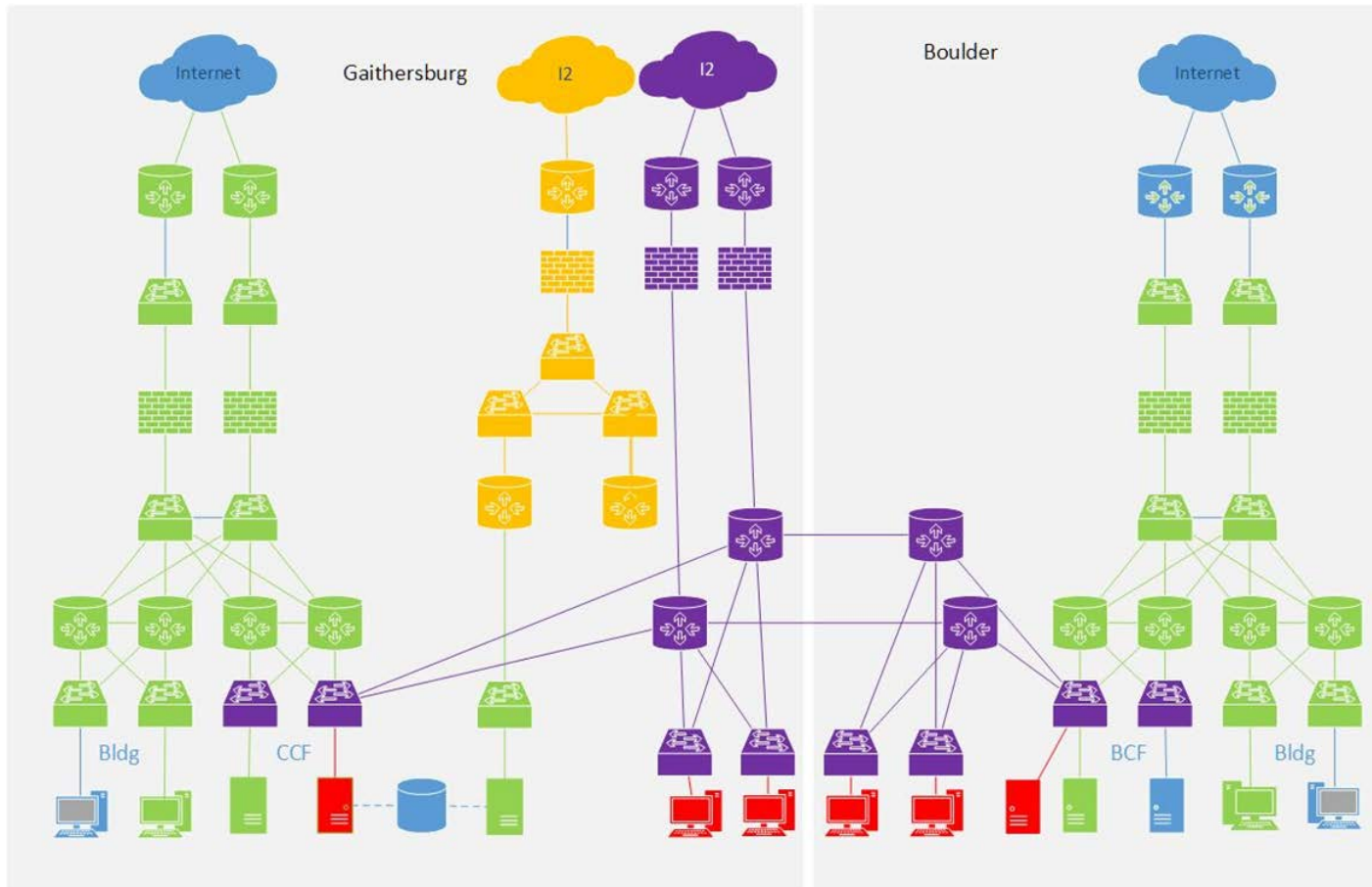
- Create high speed dedicated research networks that meet the high speed needs of todays science for specific functions.

- Increase speed of transmission across all IT systems to be in line with other similar organizations.

- Provide petabyte storage and back-up capabilities.

- Modernize NIST fiber backbones.

- Strengthen and stabilize network operations.

Major Programs Funding Requirements

Description	Cost in FY20 $
B1R[1]: Complete Wing 4 & partial spine (Boulder)	$90M
General Purpose Laboratories (GPL) Modernization Program (Gaithersburg)	$1,537M[2]
Utility Infrastructure Modernization[3] (Both)	$150M
IT Infrastructure Improvements (Both)	$40M
Security Improvements (Both)	$50M
Building 101 Complex (Gaithersburg)	$140M

Notes:
1: Does not include Wings 1, 2, headhouse or associated spine. Takes into account FY20 appropriation.
2: GPL Buildings 220-227 & new 228. B228 estimate is $280M
3: Portion required to address campus wide utilities & most urgent needs in buildings.

Infrastructure: Funding Requirements

CRF: Facilities Modernization Fund
Annual Sustainable Funding of $60M-$80M

+

SCMMR: Operations & Maintenance Fund
Annual Sustainable Funding of $115M*-$148M**

$175M-$228M
Annual Funding Needs

*: 4%+ of Property Replacement Value per National Research Council, 1990: "Committing to the Cost of Ownership: Maintenance and Repair of Public Buildings" (Value shown is 4%. 5% is $144M)

**: DOC Rent Rate paid to GSA for operations & maintenance of DOC occupied, GSA owned facilities.

Infrastructure: Path Forward

NIST

CRF Funding

20 Year Master Plans Integration*

❖ Top 5 priority projects identified &
   ranked per campus by Space Board**

❖ Draft prioritized top 10 list completed
   by Space Board

❖ Next: Present Space Board
   recommendations to NIST Director

❖ Next: Finalize report with estimates and
   schedules for 20 year plan & submit to
   Congress by June 2020

CRF: Facilities Modernization Fund
Annual Sustainable Funding of $60M-$80M

* : Required by FY19 Appropriation, Senate Report 115-275
**: Space Board Committee Charter established March 01, 2013

Infrastructure: Path Forward

NIST

SCMMR Funding

❖ BUILDER Migration

❖ Revised Annual SCMMR Plan: Mission Impact Based with 5-10 year projects list

❖ Facility Management Software Suite

❖ Verification contract for Preventive Maintenance

❖ Preventive Maintenance Support Contracts

❖ Design-Build IDIQ Contracts

SCMMR: Operations & Maintenance Fund
Annual Sustainable Funding of $115M*-$148M**

Funding Needs & Path Forward

Development of 20 year plan for integrating both master plans together

❖ Based on $60M & $80M per year in CRF for Facilities Modernization Fund,

❖ Based on $120M per year in SCMMR for operations & maintenance funding to address backlog,

❖ Reviews maximum opportunities for completion of both master plans within funding constraints that can be accomplished within 20 year plan vs full funding required to fully fund master plans in 20 year cycle,

❖ Top 10 capital projects ranking in late January 2020 with full report to Congress completed by June 2020

Gaithersburg Top 5 Capital Projects	Boulder Top 5 Capital Projects
1.) New Research Building 228	1.) B1 Renovation: Wing 5 (Research)
2.) Building 101 Renovation (HQ Building)	2.) Building 2 Replacement (Research, New Construction/demo existing Bldg. 2)
3.) Building 221 Renovation (Research)	3.) Building 3 Addition (Research, New construction)
4.) Gate F Shipping & Receiving Facility for Security (New Construction/Security)	4.) Renovate Building 24
5.) Building 220 Renovation (Research)	5.) Build new Childcare Center (demo existing)

B245 Modernization

1. H-Wing Addition 99% complete

2. D Wing Addition 99% complete

3. Temporary Office Complex occupied

4. Wing C Renovation beginning

Utility Infrastructure Projects

NIST

High Speed Switch (B)

Site Utilities Studies

Steam System (G)

Central Plant (G)

Electrical Ductbank (G)

AML Victaulic Fittings (G)

QUESTIONS?