

**Physical Sciences Facility
Pacific Northwest National
Laboratory**

**Chad Henderson
Federal Project Director
Pacific Northwest Site Office
Office of Science**





PNNL – CRL and PSF



- Hanford 300 Area Cleanup had major implications for PNNL
 - would displace ~700 PNNL staff
 - would lose 560,000 FT² of lab space (including Category 2 radiological lab)
- Initial estimate for replacing lost capabilities was \$300-\$400M
- Cost forced an innovative funding strategy

The Challenge – Too Costly



- A multi-project strategy, the Capability Replacement Lab (CRL) was developed
 - SC, NNSA and DHS agreed to partner in funding the PSF Line Item project
 - Battelle agreed to pursue alternative financing and long term lease with a developer for BSF & CSF
 - EM & Washington State funded utilities
 - Lab overhead funded relocation of staff, equipment and transition activities

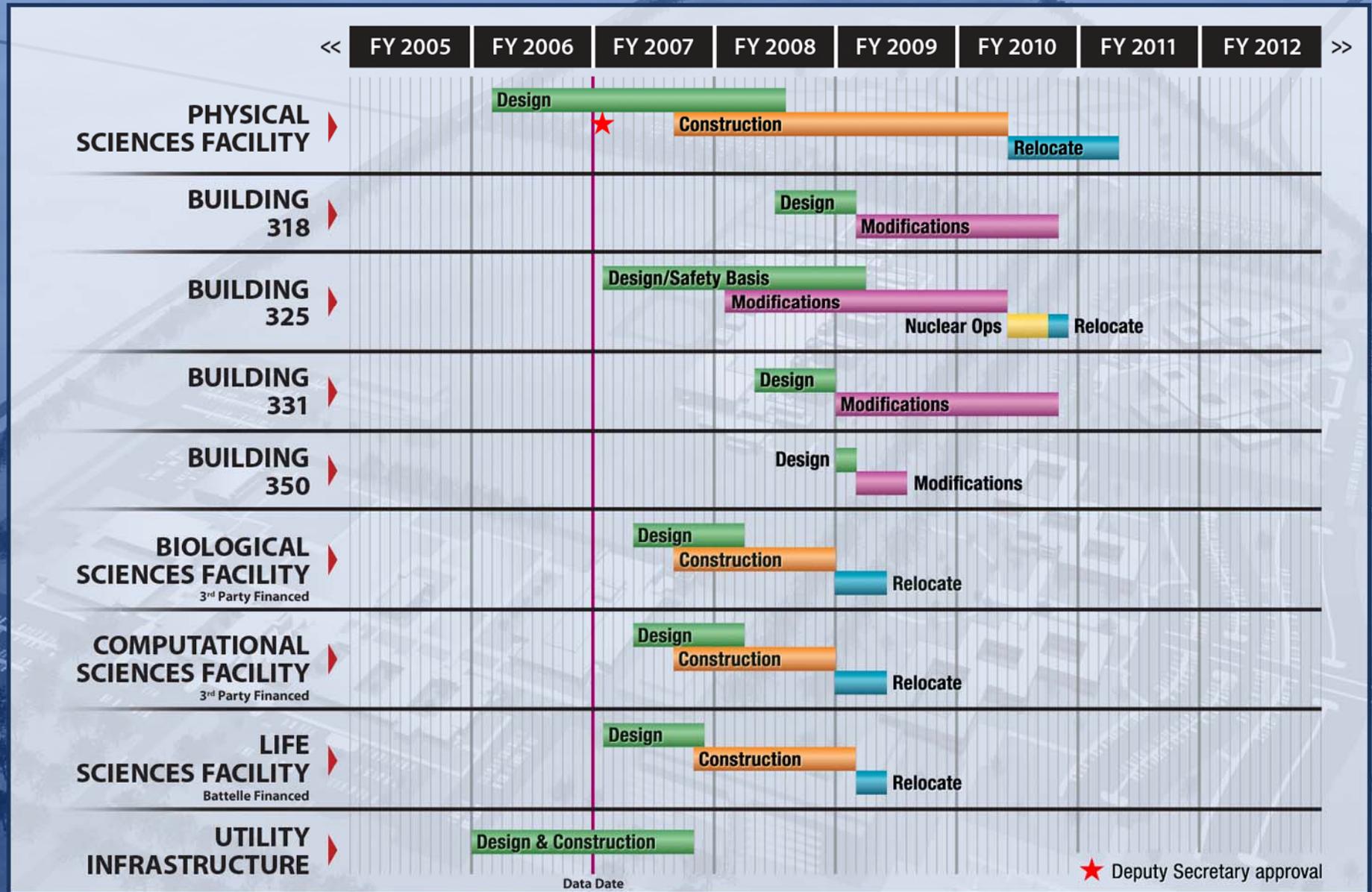
The Solution – Pass the Hat



Scope	Sponsor	Cost
PSF Line Item	SC, NNSA, DHS	\$224M
BSF and CSF	Alternate Finance	\$95M
PNNL Site Utilities	Washington State	\$5M
Relocation	PNNL	\$33M
3 Buildings Upgraded	PNNL	\$7.7M
300 Area Utilities	EM	\$12M

Capability Replacement Lab

CRL Summary Schedule





10 capabilities retained; mixed-funding approach

Mission Critical Capabilities

- PSF – New Construction
 - ❑ Ultra-trace
 - ❑ Radiation Detection
 - ❑ Materials Science & Technology
 - ❑ Chemistry and Processing
 - PSF - 325 Building
 - ❑ Shielded Operations
 - ❑ Radiation Detection
 - ❑ Materials Science & Technology
 - ❑ Chemistry and Processing
 - BSF - Systems Biology
 - CSF - Information Analytics
 - Other retained facilities - Certification and Dosimetry, Subsurface Science, and Environmental Biomarkers
- } 3rd Party

Physical Sciences Facility Line-item Performance Parameters Include New Construction at the PNNL Site of ~190,000 sq. ft. and Life-extension Upgrades of 325 Building





Physical Sciences Facility



Ultratrace



Materials Science and Technology



325 Building Life-Extension Scope

- Hazard Category 2 Nuclear Facility renovation - \$34M
- Install five modular hot cells
- Install three glove boxes
- HVAC system upgrades
- Seismic upgrades
- Documented Safety Analysis update
- Readiness assessment





Hot cells



Glovebox



- Mentoring of FPD's is very important
- Multiple funding sponsors is risky and requires constant attention
- Regular peer reviews help keep project teams focused – quick feedback is key
- FPD should be in close and continuous communication with Program Manager

Lessons Learned



- Identify contingent scope to reduce risk
- Phased multiple construction contracts to address sub-optimal funding profile
- Value engineering – able to reduce high bid by \$30M
- Need to closely monitor nuclear grade equipment vendors

Lessons Learned - Continued