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ALDFO Continuous Improvement

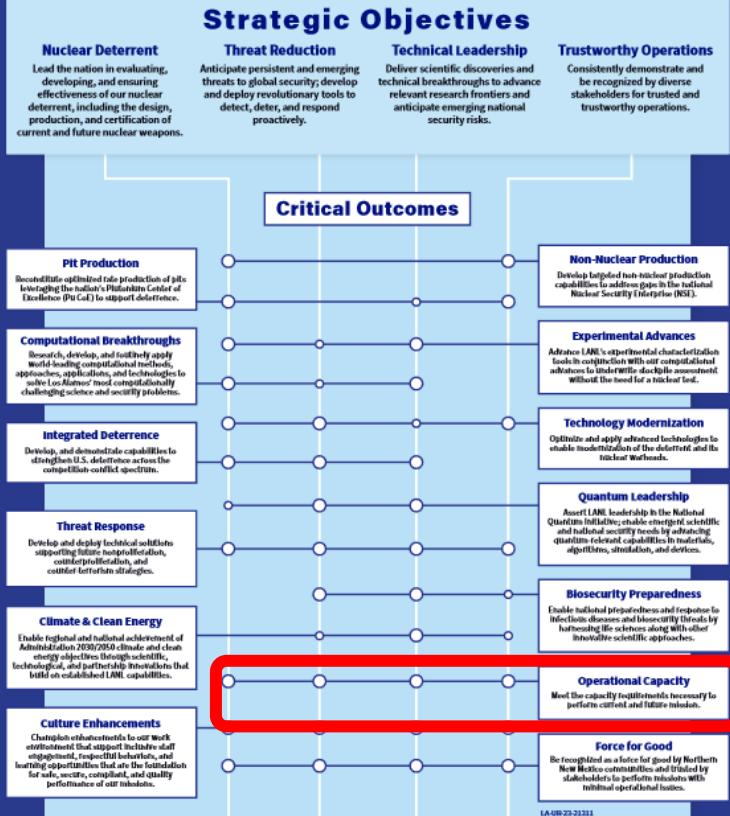
Ed Anderson and Leo Jaramillo
Facilities & Operations

April 18, 2023

Lab Agenda Snapshot

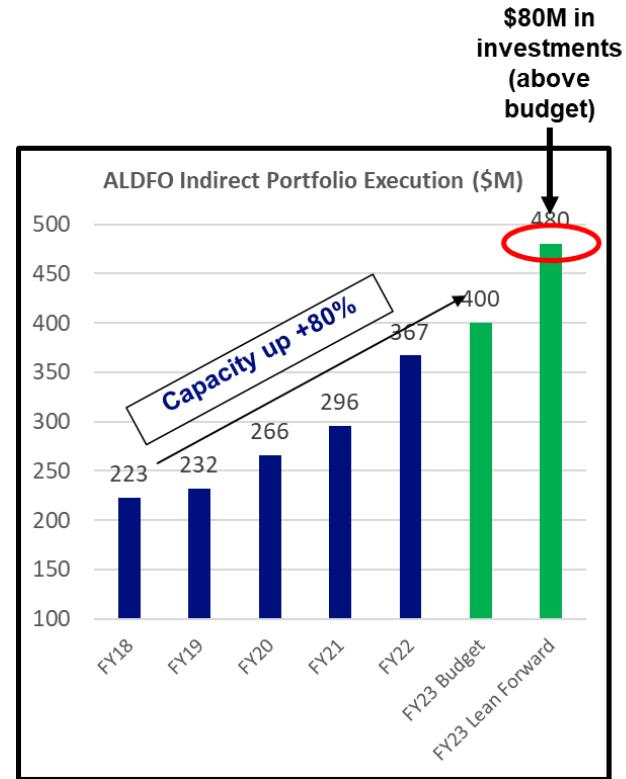
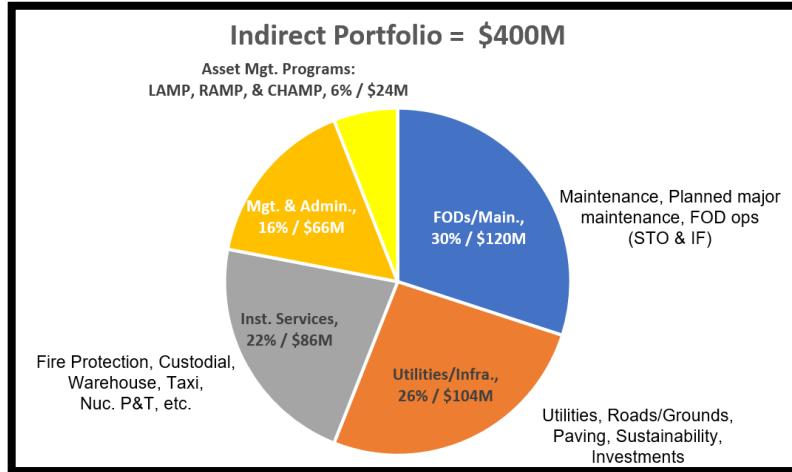
2023 Update

The Laboratory Agenda provides a structured framework that identifies the strategic objectives, critical outcomes, near-term R&D, and production and mission-support activities needed to accomplish our mission.



ALDFO has taken a Lean Forward posture to increase Operational Capacity

- ALDFO total FY23 budget = \$859M
- ALDFO total FY23 indirect budget = \$400M

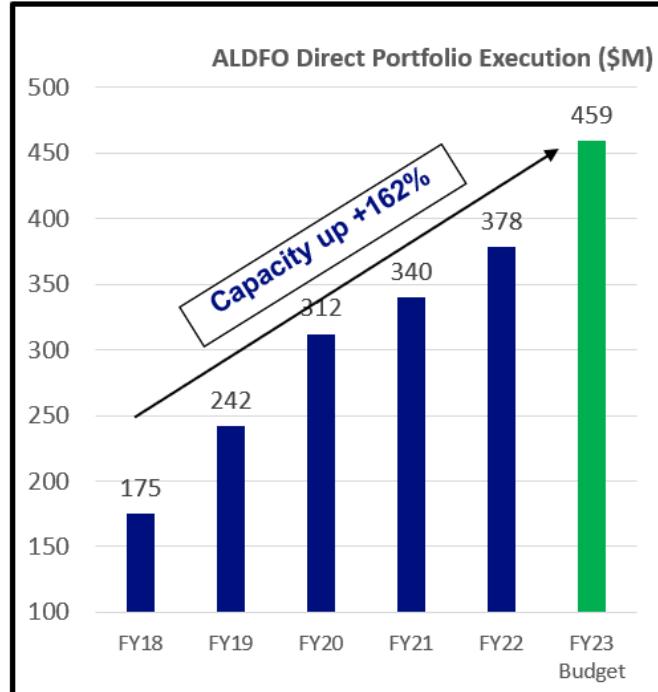
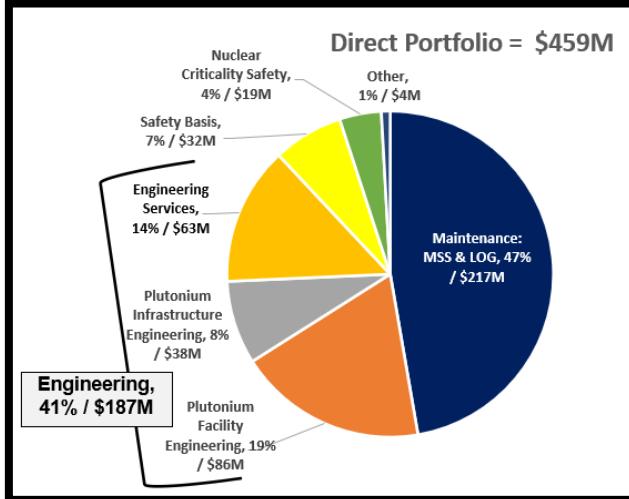


- Significant momentum going into FY23
 - FY22 YTD Feb = \$108M, FY23 YTD Feb = \$165M (up 53%)
 - FY23 ROE = \$423M (current pace), FY23 Forecasted costs = \$484M
 - FTEs: FY22 = 711, FY23 YTD = 837, FY23 Forecast = 907

FY23 Operational Capacity pace has increased significantly in FY23

ALDFO is focused on supporting the growing Weapons Program and Construction Projects

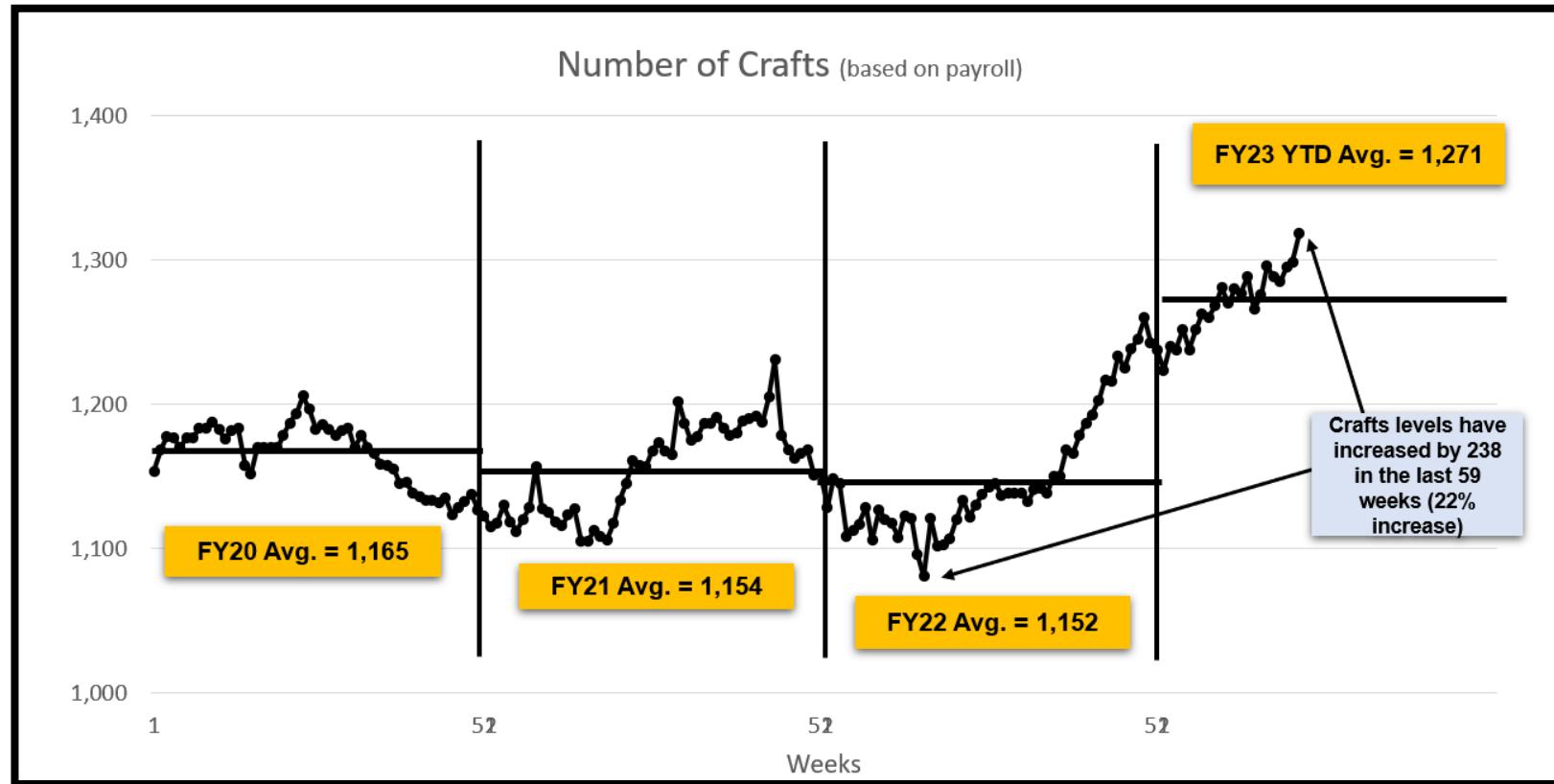
- ALDFO total FY23 budget = \$859M
- ALDFO total FY23 direct budget = \$459M
(Weapons \$385M, Construction = \$68M, Other = \$5M)



- Building momentum into FY23 (more work than people)
 - FY22 YTD Feb = \$133M, FY23 YTD Feb = \$172M (up 19%)
 - **FY23 ROE = \$442M (current pace)**, FY23 Forecasted costs = \$394M (needs updates)
 - FTEs: FY22 = 553, FY23 YTD = 658 – continue to increase staff levels

FY23 Operational Capacity pace has increased significantly

LANL Craft Headcount by Week: FY20 – FY23 YTD

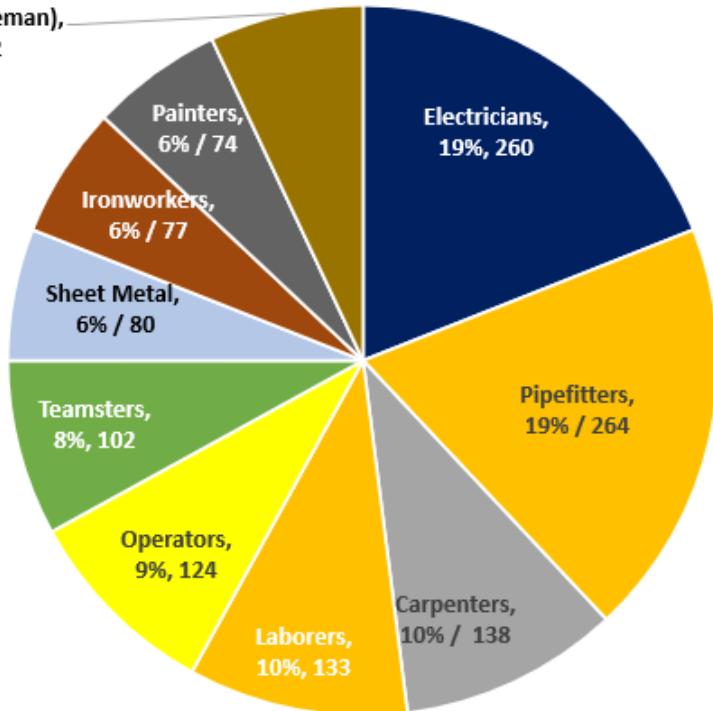


Craft numbers have been increasing since mid-FY22 to support projects and facility ops/maintenance

FY23 LANL Crafts by Type and Assignments

FY23 LANL Crafts by Type – 1,354 total

Other (Insulators,
Roofers, Masons,
Relamper, Lineman),
7% / 102



Craft Assignments

- Maintenance – 617 / 46%
- Construction – 290 / 21%
- Craft Support: Metal Fab, Structural, Paint Shops, Roads & Grounds – 246 / 18%
- Deployed OPS and Logistics Services – 201 / 15%

Total – 1,354 / 100%

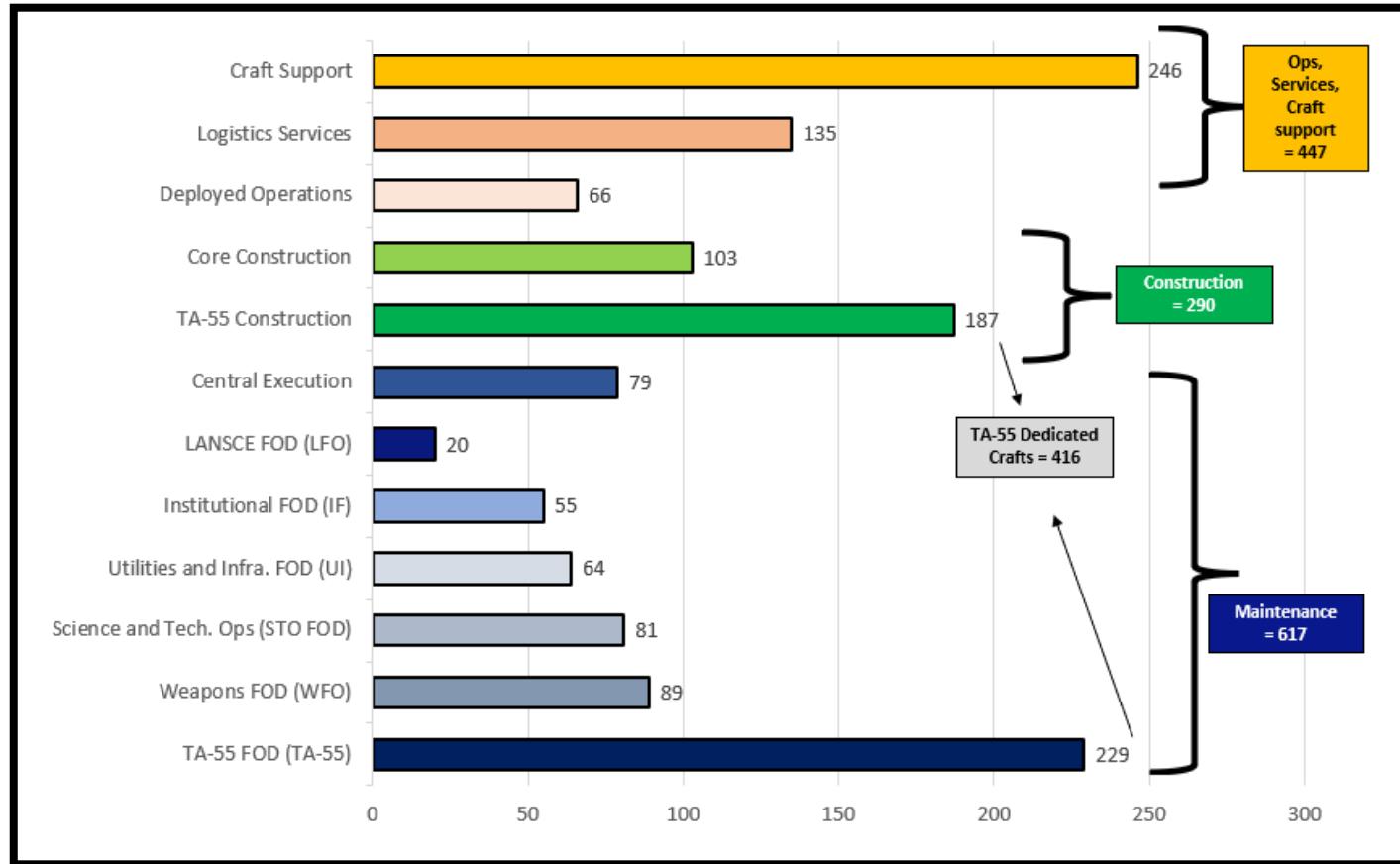
Construction Craft Assignments

TA-55 Construction	= 187 / 64%
Core Construction	= 103 / 36%
Total	= 290 / 100%

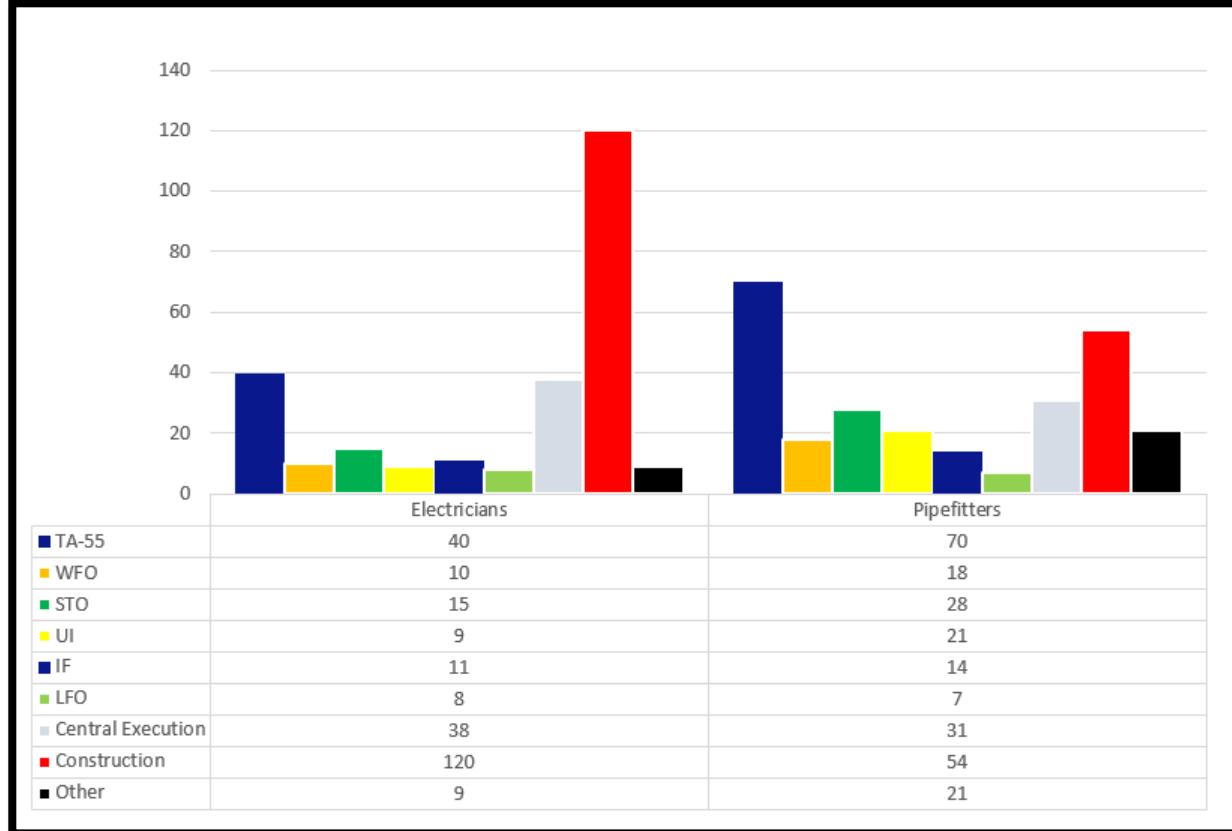
Construction Crafts by Type

Electricians	– 120 / 41% (46% of all)
Pipefitters	– 54 / 19% (20% of all)
Carpenters	– 41 / 14% (30% of all)
Sheet Metal	– 32 / 11% (40% of all)
Other	– 43 / 15%
Total	– 290 / 100%

FY23 LANL Crafts by Assignment = 1,354



FY23 LANL Electricians and Pipefitter by Assignment



Electricians and Pipefitters make up over 50% of all maintenance craft, these are the critical resources to execute additional facility work in any area. To execute more in any one area, would require movement of these resources between FODs, Construction work, and other areas. Recognizing that LANL continues to pursue hiring in these trades.

LANL Deferred Maintenance

LANL Deferred Maintenance (DM) as a % of Replacement Plant Value (RPV)

	FY20	FY21	FY22	Change (FY22-FY20)
LANL DM	\$1,192M	\$1,369M	\$1,364M	+\$172M / 14%
LANL RPV	\$36,408M	\$37,261M	\$40,838M	+\$4,430M / 12%
LANL DM/RPV ratio	3.3%	3.7%	3.3%	Rise in RPV decreased FY22 ratio
NNSA DM/RPV ratio	5.0%	5.0%	4.84%	Congressional mandate for NNSA to reach ratio of 2.67% by 2030

Top 10 LANL Facilities for Deferred Maintenance

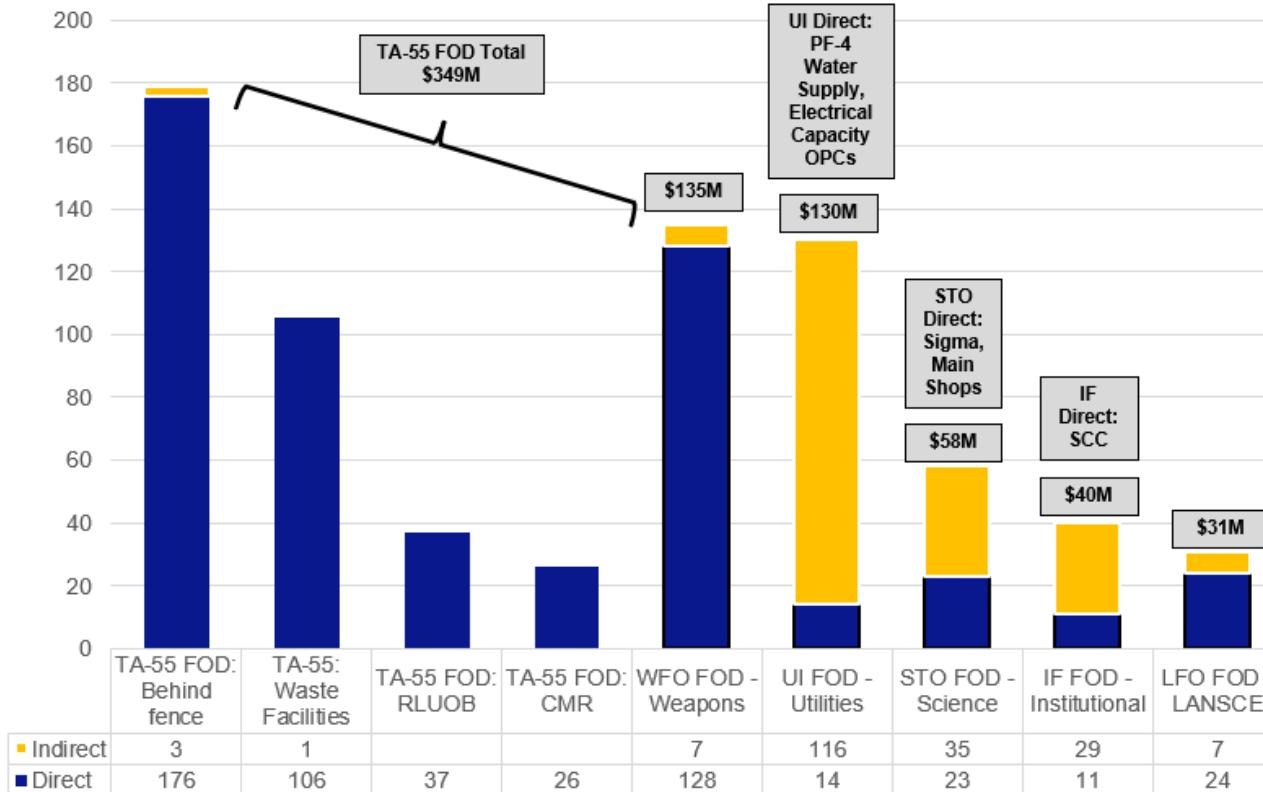
Property ID	Property Name	Area Name	FY22 Deferred Maintenance
03-0029	CMR LABORATORY	TA55	\$281,085,015
53-0003	LANSCE ACCELERATOR BLDG	LANSCE	\$223,412,700
55-0004	PLUTONIUM BLDG	TA55	\$118,709,000
03-0022	Z STEAM PLANT C106140	UI	\$54,159,690
03-0040	PHYSICS BLDG	STO	\$37,607,450
99-1789	PARKING (VEHICULAR)	UI	\$31,072,119
03-0066	SIGMA BLDG	STO	\$26,877,220
99-1739	SECONDARY ROADS	UI	\$20,679,784
48-0001	LABORATORY BLDG	STO	\$19,602,560
03-5829	PLANTS (GAS-FIRED)	UI	\$19,380,229
Top Ten sub-total			\$832,585,767
All Other sub-total			\$531,280,772
Grand Total			\$1,363,866,539
Top Ten of Total %			61%

Types of Money to support Facility Maintenance and Operations

Direct Facility funding Weapons Programs and NNSA Infrastructure (NA-90: ALDICP portfolio) FY23 budget ~\$550M	Indirect Facility funding Indirect budgets managed by ALDFO FY23 budget ~\$180M	Planned Major Maintenance (PMM) Indirect budgets managed by ALDFO FY23 budget ~\$20M	Asset Mgmt. Programs (AMPs) Indirect budgets managed by ALDFO FY23 budget ~\$25M	Indirect Infrastructure investments (IPPO) Indirect budgets managed by ALDICP FY23 budget ~\$75M	Direct Recapitalization Projects (NA-90) Direct budgets managed by ALDICP FY23 budget ~\$287M, (~\$200M in carryover included)
Support for Direct funded Weapons facilities : TA-55, RLUOB, CMR, Waste Facilities, DAHRT, SCC, Sigma, LANSCE accelerator, WETF, HE/Firing/Detonator sites and facilities, etc.	Support for all facilities outside direct model: lab-wide office buildings, labs, institutional infrastructure (utilities, roads, etc.), supports majority of lab square footage and tenants , primarily used for preventative and corrective maintenance	Support for projects beyond basic maintenance in indirect facilities, typically \$1M-\$5M projects such as replacing a boiler or HVAC system , portfolio is not funded to cover significant building upgrades or recapitalization	NNSA complex-wide program with single vendors for all sites, RAMP (Roofs) – managed by Kansas City, CHAMP (Cooling and Heating) – managed by Livermore, LAMP (Low-Voltage) – pilot project at LANL	Indirect investment profile FY23-FY30 (over 8 years), ~\$700M in planned projects, approx. 70% of portfolio is slated for Pajarito Corridor projects , Investment profile is: New construction ~\$500M, Utility infrastructure ~\$110M, Maintenance / Recap ~\$30M, Leases/Acquisitions ~\$12M (Entrada, Viome, Pebble lab facilities, etc.), Other ~\$48M	Direct Recap funding is meant to modernize NNSA infrastructure and prioritizes investments to improve the condition and extend the life of structures, capabilities, and/or systems. Projects are mission enabling (TA-55 and Weapons Engineering centric), but also includes Fire Stations

FY23 Facility Operations Director (FOD) Budgets

March month-end (\$M)

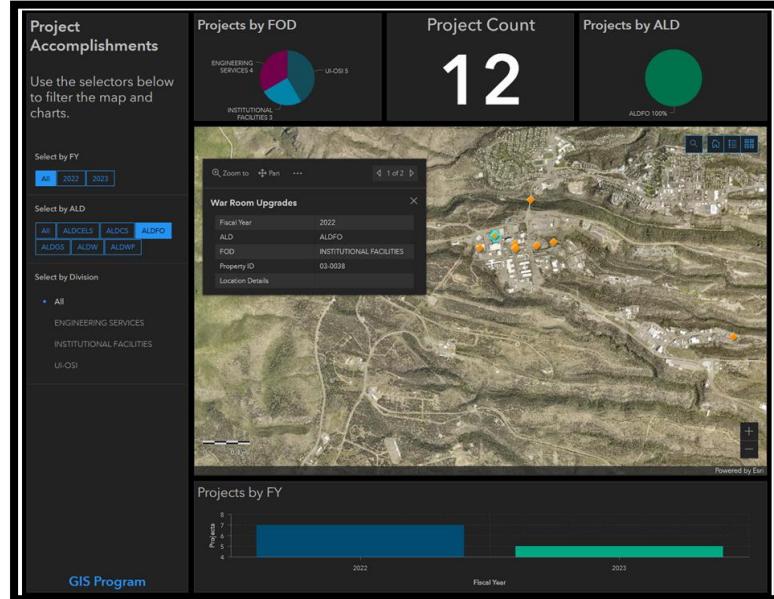


Total FOD budgets = \$743M

\$545M in Direct budgets / \$198M in Indirect Budgets

ALDFO Project Storyboard

- ALDFO's Project Storyboard is a set of powerful tools that visually captures and summarizes FOD and Division project accomplishments.
- The StoryMap and Dashboard enable easy access to project information through the project detail panel, facilitating informed decision making and improving performance.
- ALDFO's commitment to excellence and transparency in project management.



StoryMap provides a project summary, its execution path, budget, and lessons learned, as well as graphics/photos and location of the project in the main map. The interactive map displays details about the building in the pop-up.

Dashboard Features

- Projects are categorized by Division, FY and ALD, visually representing the distribution across divisions.
- Projects can be filled by FY, allowing for easy tracking and accomplishments for FY22 with FY23 accomplishments approaching.
- The Dashboard can also be filtered to display the number of projects completed by each Division and ALD, measuring overall divisional performance.
- It (will be) can be filtered by total dollar amount per ALD, FY, and Division, showcasing the financial impact of completed projects.

ALDPS - PROJECT ACCOMPLISHMENTS FY22-FY23

- 1 CRITICAL EXHAUST FAN REPLACEMENT
TA-35-0213
- 2 CHILLER PROJECT TA-03-1698
- 3 SIGMA PROJECT TA-03-0066

STO, FY22

SUMMARY

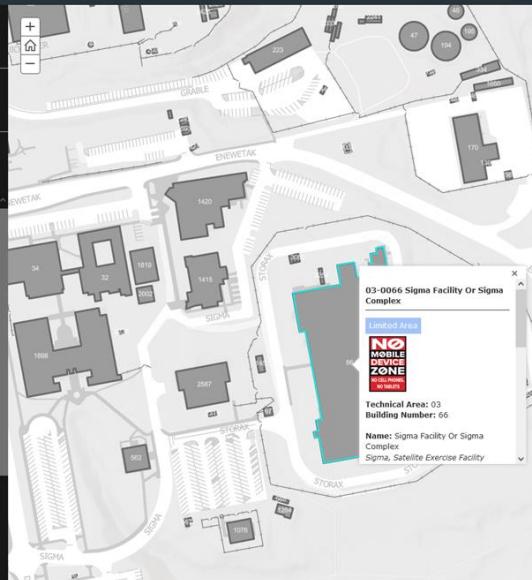
The DSN/Hydro Program is currently supported by the machine shop in machining activities for many of the hydro shots performed at LANL. This contributes to the work supported by the Sigma Foundry and Solidification Science Team and the Sigma Deformation Processes Team. The Water Jet System provides better efficiency on special components for work performed within the Sigma Facility and addresses a single point failure by preventing exiting bottlenecks with outputs in "blanking out material for customers in and out of Sigma". It allows Sigma Division to produce various components in a safe manner and at a higher output with fewer delays and increase cost saving.

EXECUTION PATH & BUDGET

Total Project Cost \$600,000.

Executed September 2022 and estimated to be completed May 2023.





03-0066 Sigma Facility Or Sigma Complex

Technical Area: 03
Building Number: 66

Name: Sigma Facility Or Sigma Complex
Sigma, Satellite Exercise Facility

Consistency

Conduct of Operations – Disciplined Operations

ALDFO chartered working group chaired by COO with cross-FOD representation.

- Con-Ops formality, efficiency, effectiveness, consistency
- Standardization processes across FODs
- Customer Centric Service Improvements
- Consistent Metrics
- Culture –Trust
- Subcommunities of Practice
 - Maintenance Managers
 - Operations Managers



Capacity

- Craft Efficiency – More Wrench Time
 - Planning
 - Scheduling
 - Oversight
 - Agility
- Maintenance Subcontracting
- Continue Aggressive Hiring



Response/Delivery

- FOD Specific Engineering Groups (40-50)
- Transparent 5 year Maintenance Planning
- Transparent Programmatic Prioritization
- Corrective Action Team
- Lean-In Planning and Control



For Discussion – Overall Facility Life Cycle Strategy

- ALDFO & ALDICP Team to Lead Development
 - New Facilities
 - Refurbishments
 - Recapitalizations
 - Major Maintenance
 - Maintenance
 - D&D Facilities
 - Programmatic Priority List
- Structured Prioritization Process Informed by RALDs
- Annual Concurrence by the LT

