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A.J. CLARK SCHOOL OF ENGINEERING
Civil & Environmental Engineering Department



Program Management Improvement Team: A Best Practice-based Approach to Process Improvement and Program Governance at the National Nuclear Security Administration

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2016 Project Management Symposium



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- Semi-autonomous agency within the U.S. Department of Energy.
- Maintains and enhances the safety, security, reliability and performance of the U.S. nuclear weapons stockpile;
- Works to reduce global danger from weapons of mass destruction;
- Provides U.S. Navy with safe and effective nuclear propulsion; and
- Responds to nuclear and radiological emergencies



NA-50: NNSA Office of Safety, Infrastructure & Operations

- Responsible for maintaining, operating, and modernizing NNSA's general purpose infrastructure – buildings, roads, power and water utilities, information systems and more
- Includes 6,000+ facilities located in seven states comprising over \$50 billion in real property assets
- Annual budget approx. \$1.5 billion

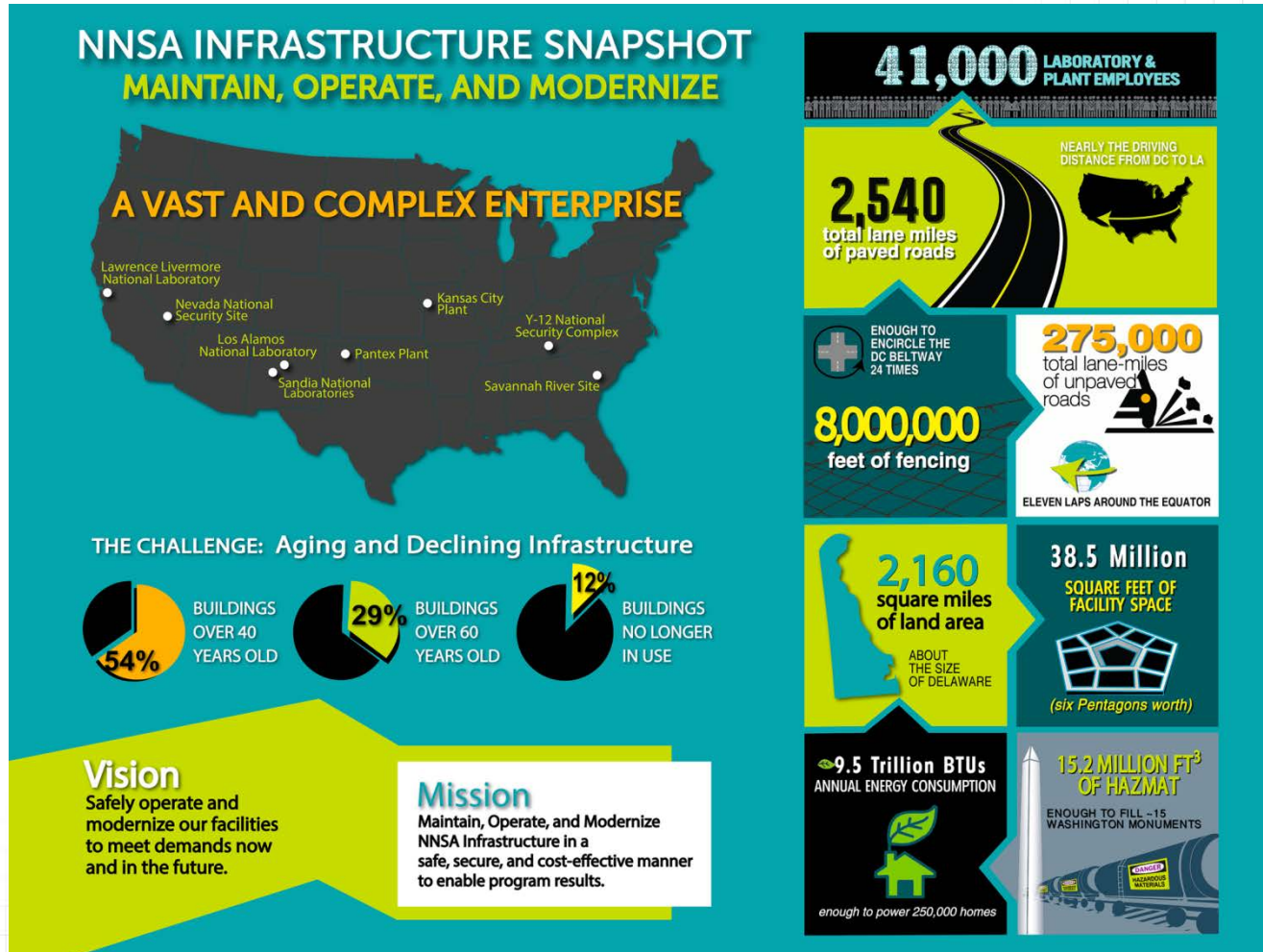


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NNSA Infrastructure Challenges

- Annual Budget (funding & process)
- Aging & brittle facilities – many buildings 40+ years old, 30% date to Manhattan Project
- Years of deferred maintenance; risks & failures increasing
- # & range of facility characteristics + changing program requirements
- Multiple locations and contractors
- Contamination issues



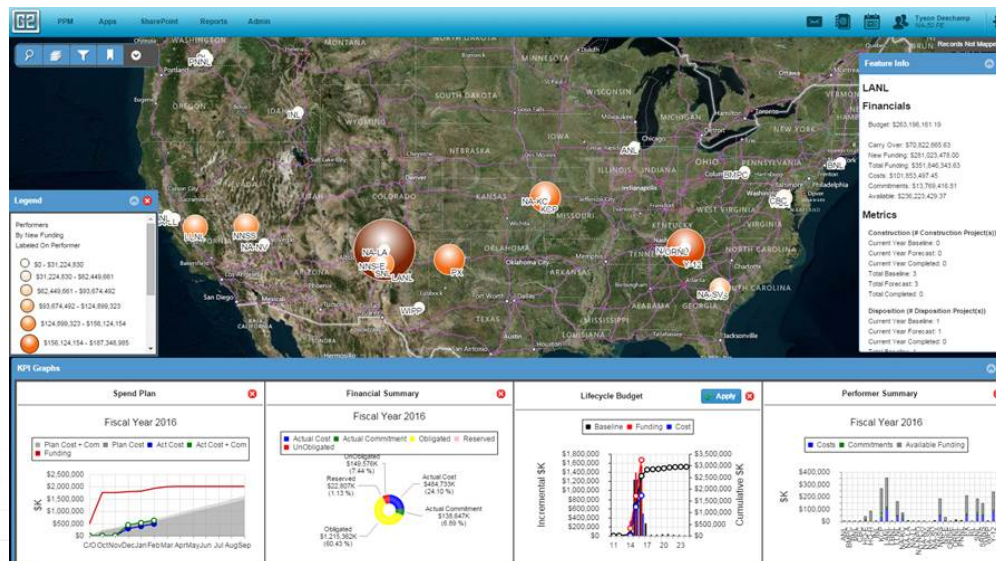


New Best Practices Approach at NA-50

- Enterprise-wide rather than site-specific perspective
- Long range rather than annual planning horizon
- Focus on Program, Project and Portfolio Management (PPPM)
- Adoption of best-in-class tools and best practices
- Implementation of Enterprise Risk Management (ERM)
- Increased Emphasis on Safety and Sustainability
- Adoption of Agility as management philosophy
- Increased stakeholder engagement & teamwork
- Use of outside industry advisory team (PMIT)

Use of Best-in-class Technology

- Real Property Inventory systems for infrastructure and facilities identification and information
- BUILDER for facility condition assessments
- Mission Dependency Index (MDI) for risk and priority analysis
- Award winning G2 Program Management Information System





NA-50 Program Management Improvement Team (PMIT)

- Established in September 2015
- Small cadre of private industry PM experts
- To help enhance PPPM through feedback to NA-50 leadership & sharing of best practices
- Periodic meetings with NNSA and site leadership
- Intended to provide safe, no-fault opportunities to review experiences and enhance performance

Independent Reviews are a widely-recognized Best Practice



PMIT Results to Date: Mtg 1

- 2 day meeting, ORNL (Tennessee), 20 participants
- Presentations & discussions of NA-50 mission, plans, tools & systems
- Positive observations noted:
 - Strong leadership and teamwork – Standardization of processes
 - Impressive tools, including G2, BUILDER, MDI, AMP, MAP
 - Enterprise perspective related to multi-site planning, stakeholders, supply chain
 - Commitment to agile approaches and to advancing PPPM
- PMIT Suggestions:
 - Expand enterprise planning to strategic level
 - Consider long term strategy for G2
 - Strategize for dealing with PM on larger projects



PMIT Results to Date: Meeting 2

- 2.5 day meeting, LLNL (California), 50+ participants
- Deep Dive planning meeting of NNSA & site leadership to review infrastructure status, issues, plans, needs
- Positive observations noted:
 - Active & visible engagement of NNSA and site leadership – Site support of NNSA goals & plans
 - Stakeholder participation in tool development & pilot projects – Emphasis on risks & safety
 - NNSA recognition and awards for site participants (individuals and teams) – Emphasis on sustainability
 - Visible emphasis on & discussion of project management – Open discussions among stakeholders
 - Implementation of enterprise level supply chain management – recognition of tool limitations
- PMIT Suggestions:
 - Expand enterprise supply chain management to more procurements/suppliers
 - Expand sustainability to include health & safety – Continue emphasis on data quality
 - Investigate additional tools – Consider use of six sigma technique for selected process improvements
 - Continue expanding planning horizon to entire facility life cycle
 - Consider the subjects of organizational resilience and sustainability
 - Consider value of site project management offices (PMOs)



Good Practices & Lessons Learned

- NNSA Good Practices (among others)
 - Enterprise-wide approaches to planning, prioritizing, budgeting
 - Enterprise supply chain management
 - Effective use of best-in-class software tools
 - Effective use of long-range and life-cycle planning
 - Emphasis on portfolio, program & project management across the NNSA enterprise
- PMIT Lessons Learned
 - Independence of PMIT promotes open discussion
 - Recognition of good practices reinforces positive changes
 - Documentation of meeting results provides bases for positive cross-complex communications and process improvements



Summary

- NNSA must keep US nuclear facilities operating safely and efficiently, while recapitalizing & modernizing
- Vast scope & tremendous challenges exist
- Revolutionary changes underway within NNSA (NA-50) employing best-in-class tools, agile approaches and PPPM best practices
- PMIT, based on previous positive experience, can contribute to successful NA50 & NNSA mission

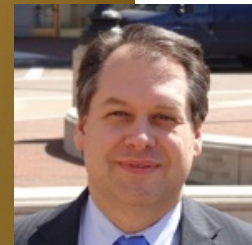


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Thank you!



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