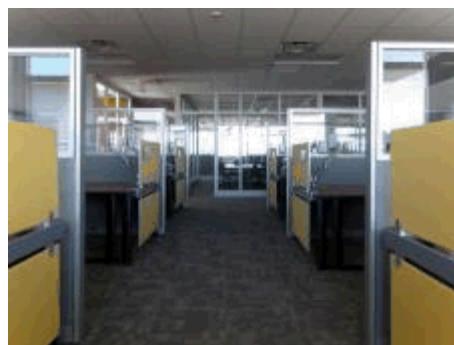
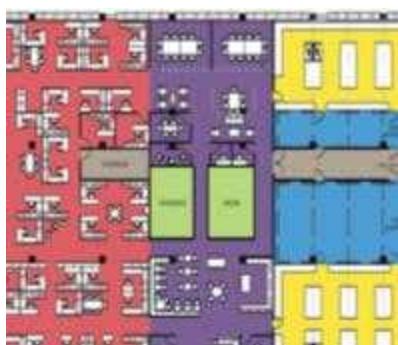


Exceptional service in the national interest



10/21/2014

The Tale of Three Buildings

Efficiency solutions for combined
technical/office facilities

Christopher Thomas Nesbit, AIA, CDT, LEED AP, NCARB – Site Strategic Planner

Objectives

- Use of **key performance indicators (KPIs)** to inform space utilization decisions,
- Examine when and how **group privacy requirements** should be factored into projects,
- Methods of **stakeholder buy-in**, and
- Pre-occupancy **adjustment processes** that improve responsiveness.

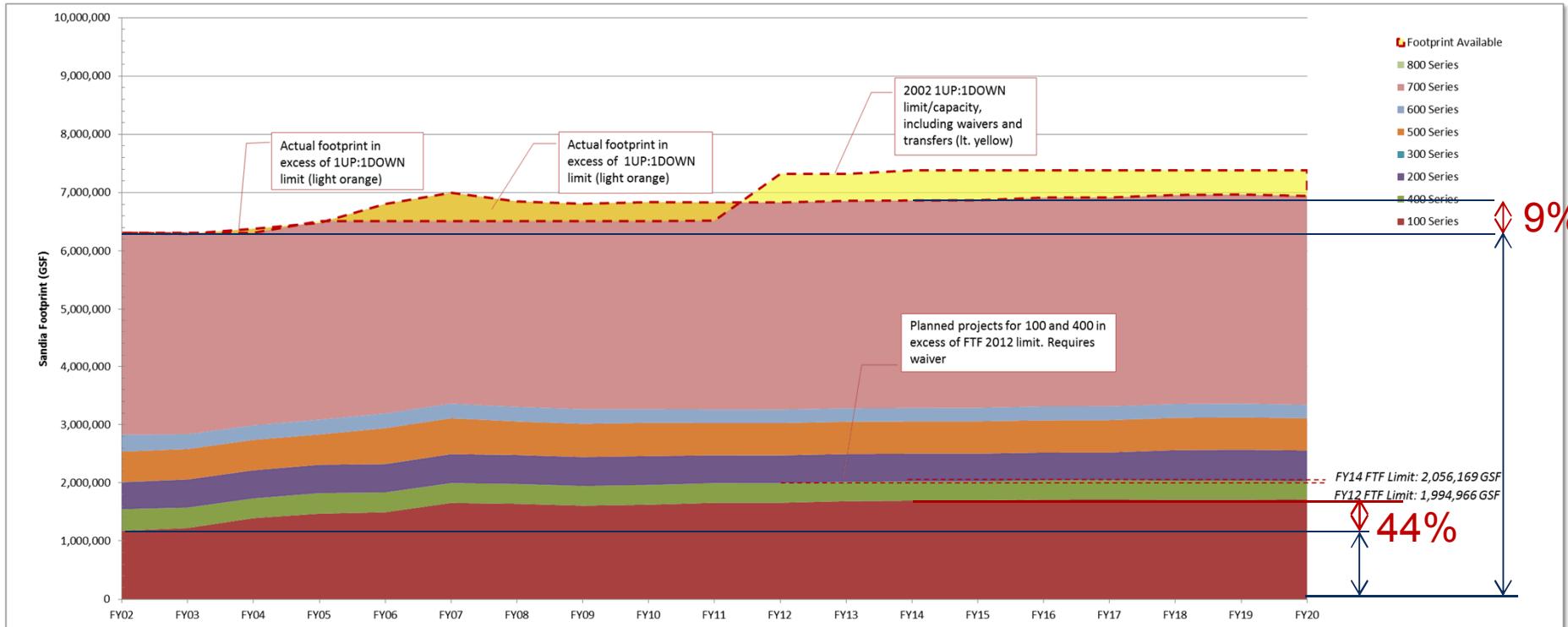
Investment Context

- DOE: Funding Limitation based on DOE O413.3b
 - Discretionary spending from M&O Contractor Operating Budget
 - GPP: \$10M max project cost, of which design cannot exceed \$1M
 - >\$5M Requires Congressional notification of intent to spend M&O funds
 - >\$500K Requires agreement by local Field Office (oversight by DOE)
- Office of Management and Budget (OMB - White House)
 - Federal Real Property Profile: All Executive Branch building areas
 - “Freeze the Footprint” Memo M-12-12 (Executive Orders)
 - 2012 baseline for “Office” and “Warehouse” buildings
 - Requires offset on footprint for either Office or Warehouse
 - Footprint managed by Department/Agency, Office/Program, Site, etc.
 - Sandia National Laboratories: 4 primary sites with other DOE owned or direct-leased facilities.



Distribution of Space

- Laboratory type represents majority use buildings
- Buildings by predominate use (9% growth overall)
- Office type building – Majority of growth past 12 years (44%)

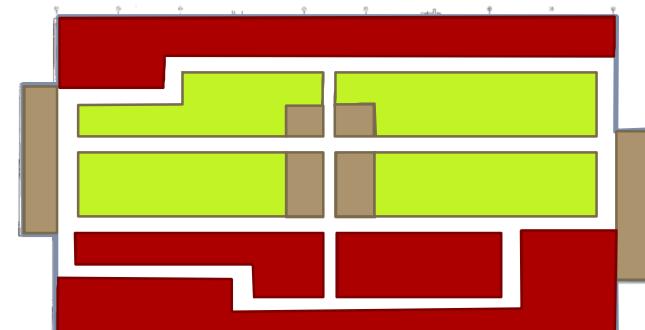


Past Office and Light Labs

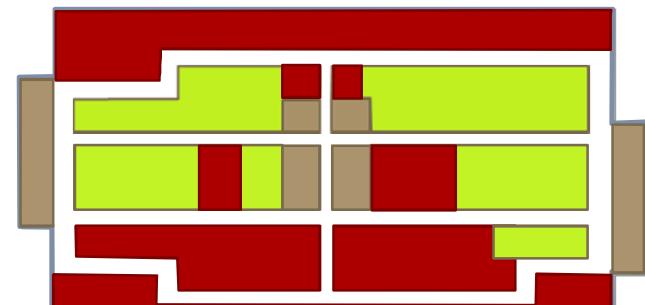
- “Clone” buildings
- Built primarily in 1980’s-90’s using Line Item level funding
- Intentionally mixed-use Office/Light Laboratory
- Consistent Layout and Construction for recurring funding
- Approximately 1.1M GSF of total 6.9M GSF = 16% Footprint



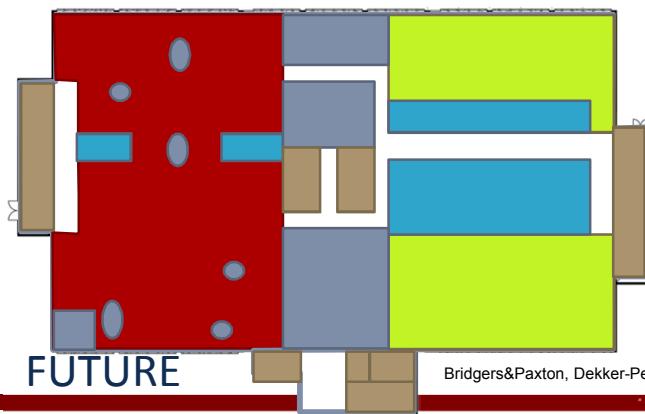
Evolution of Use



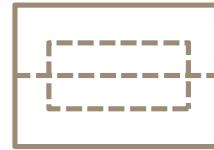
ORIGINAL



CURRENT



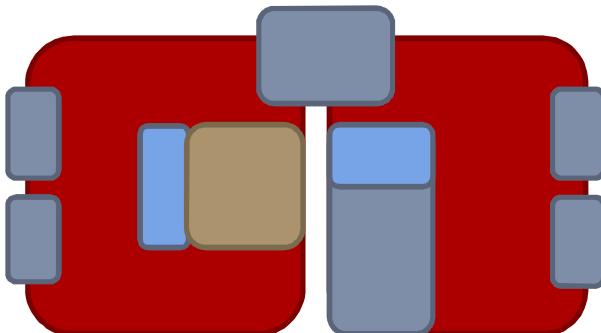
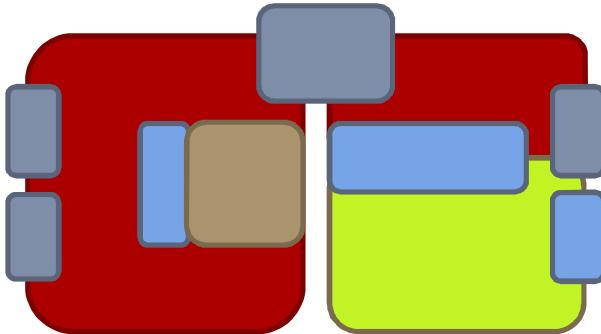
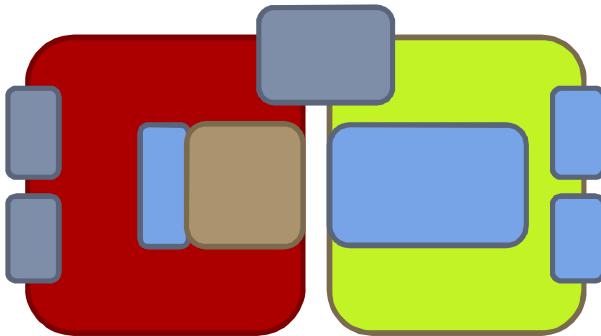
FUTURE



Organizational Diagram

- Original:
 - Clearly delineated office perimeter with Light Lab along service corridor.
- Current:
 - Increased desk-based modeling and computational research
 - Conversion of Light Labs to Office
 - Increased single office, less open office
- Future:
 - Open office configuration for collaborative work by groups
 - Flexible Lab/Conf/Office Zone

Space Flexibility



- Office versus Technical Space
 - Increase in group research
 - Transition from bench to computer-based research
- Fixed Office compared to Open / Flex Office
- Flex Zone areas:
 - Light Laboratory (non-ventilation intensive)
 - Project Rooms
 - Conference / Training
 - Open Office

Collaboration



- Formal and Informal
 - Structured
 - Opportunistic
- Work Scope
 - Shared / Common
 - Contributing
 - Influencing
 - Evolutionary versus Revolutionary
- Work Style
 - Command and Control
 - Team or Anchor
 - Digital Fluency
 - Labor Division

Security versus Privacy



Security: Level of protection required to maintain compartmentalization and need to know (NTK)

- Visual / Auditory control
- IT, Access Control
- Administrative Procedures
- Authorization and Responsibility
- Formalized by work process and contracts

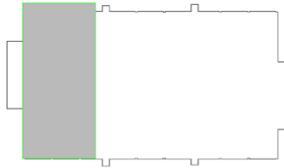
Security versus Privacy



- **Privacy:** Personal preference for interaction and ambient activity
 - Work style
 - Collaboration versus Concentration
 - Personal Control
 - Recruitment and Retention issues

704 – IGPP #1

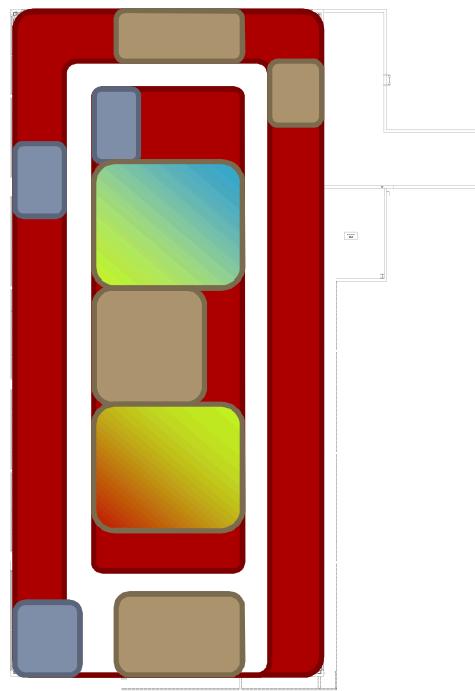
IGPP = Institutional General Plant Project



Size relative to 823

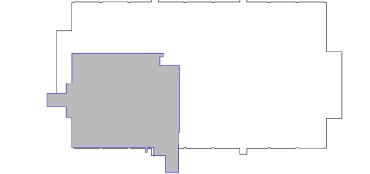


Organizational Diagram

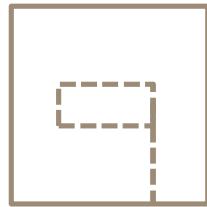


- Occupancy: 2013
- Total Area: 26,419 GSF
 - Assignable: 14,901 NASF (56%)
- Design Occ. Load: 107
 - 139.27 NASF/Occ.
- Pros:
 - Adapts to site constraints
 - Combination fixed/flex core
- Cons:
 - Solar orientation
 - Distributed offices
 - Enclosed/Open office proximity

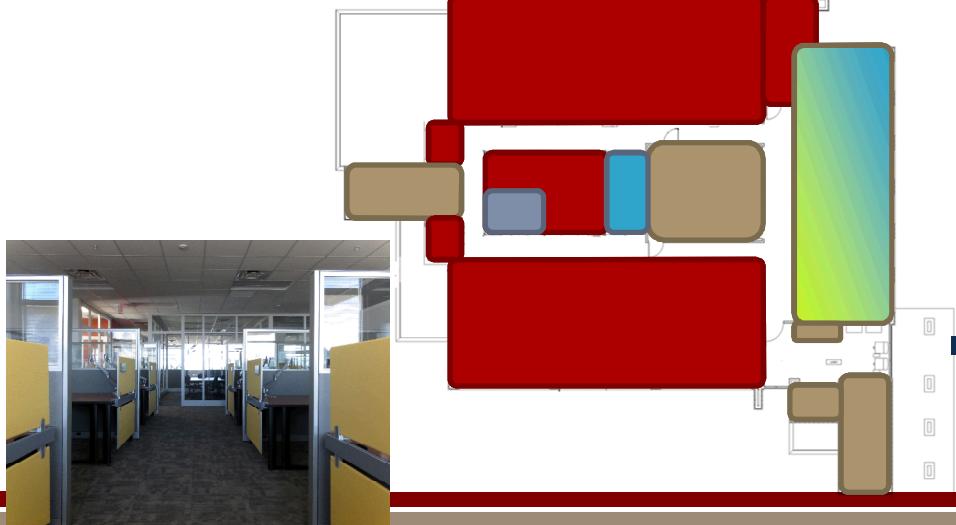
730 – IGPP #2



Size relative to 823

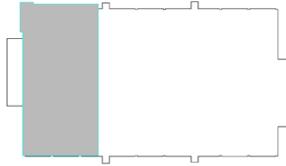


Organizational Diagram

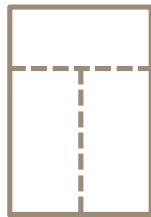


- Occupancy: 2014
- Total Area: 24,287 GSF
 - Assignable: 17,203 NASF (71%)
- Design Occ. Load: 105
 - 163.84 NASF/Occ.
- Pros:
 - Separate Flex zone (Lab or Conference/Training)
 - Enclosed/Fixed area core
 - 6 station NTK clusters (typ.)
 - High Conference allocation
- Cons:
 - Upper floor lab limitation

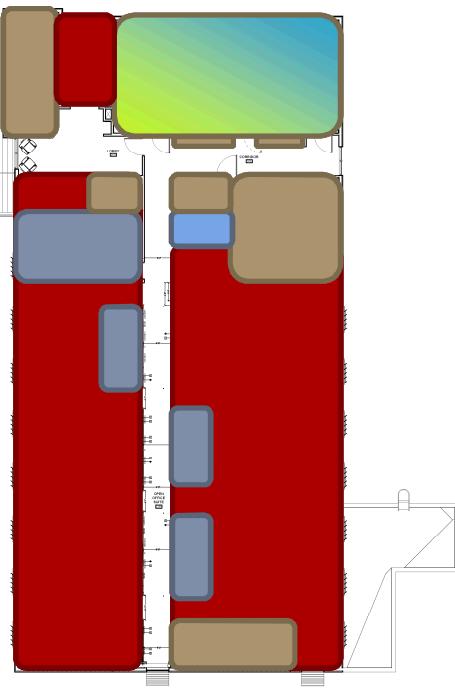
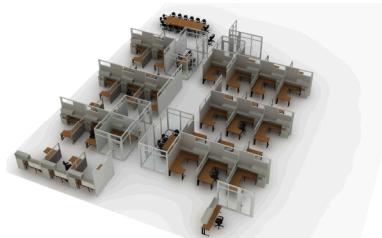
705 – IGPP #5



Size relative to 823

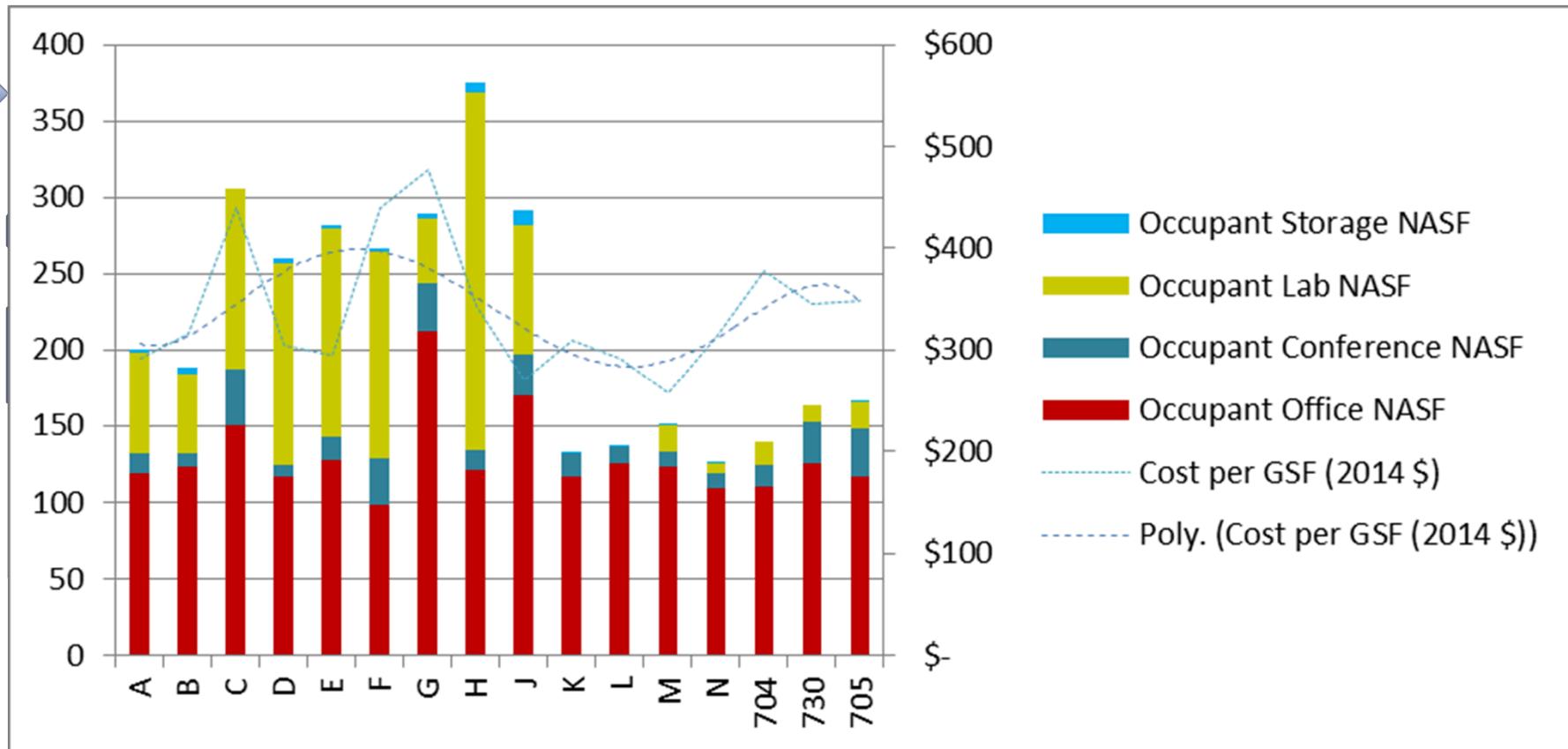


Organizational Diagram



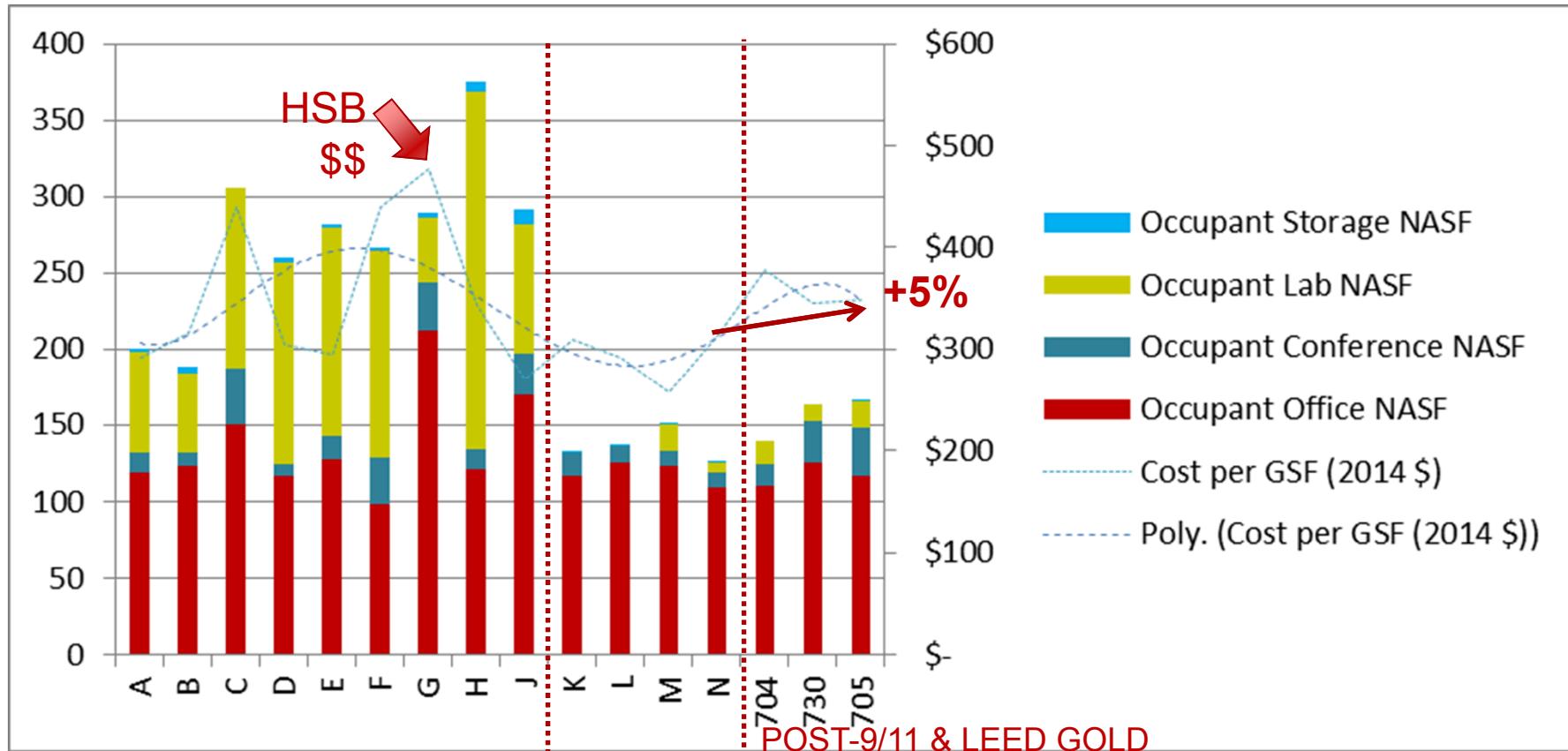
- Occupancy: 2016 (planned)
- Total Area: 25,972 GSF
 - Assignable: 16,777 NASF (65%)
- Design Occ. Load: 101
 - 166.11 NASF/Occ.
- Pros:
 - Adapts to site constraints
 - Separate Flex Zone 3 Floors
 - Variety of NTK clusters
 - High-Flex office area
- Cons:
 - Solar orientation
 - Distance to Flex Zone

Metrics – Cost



- Cost
- Efficiency
- Office to Collaboration

Metrics – Cost

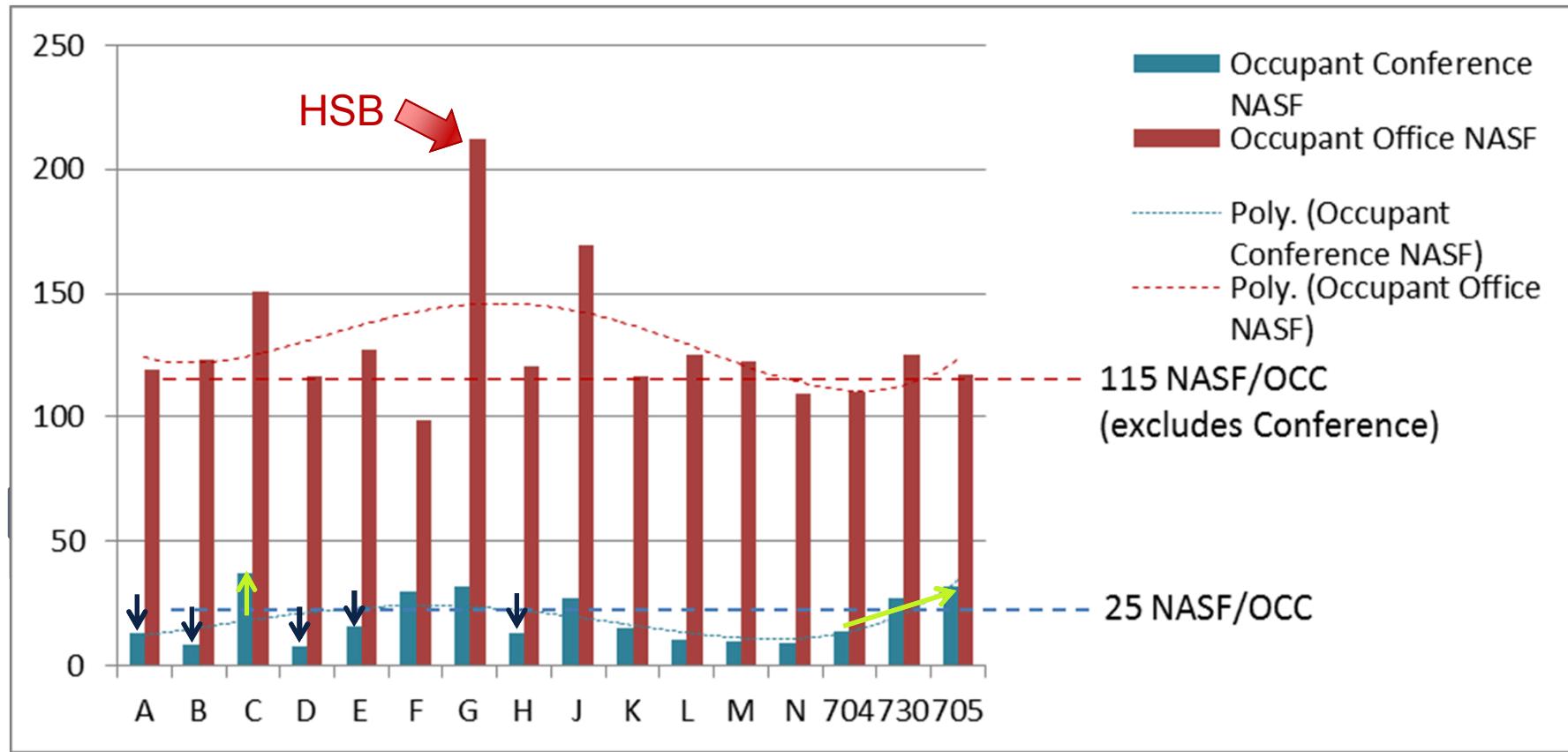


Line Item Delivery
Concrete Frame
Significant Lab Infrastructure
Demountable Partitions

IGPP/GPP Delivery
Steel Frame
Primarily Office Infrastructure
Traditional Partitions*
*(730: both traditional and demountable)

PRIMARY REMAINING VARIABLE
HISTORICALLY LESS
SMALLER SCALE, LESS EXPENSE
HISTORICALLY LESS

Metrics – Office to Collaboration



- Cost
- Efficiency
- Office to Collaboration

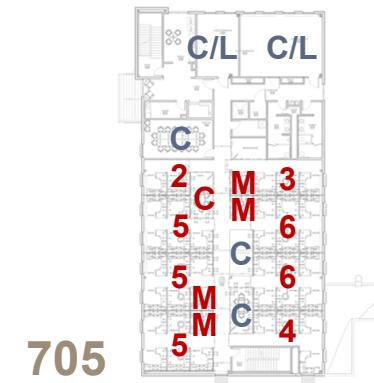
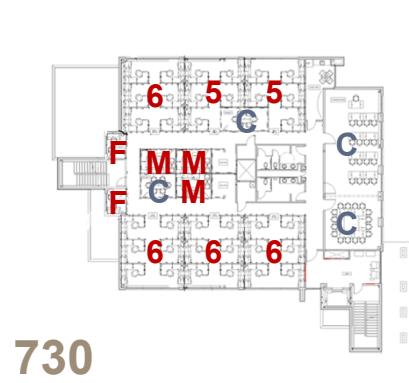
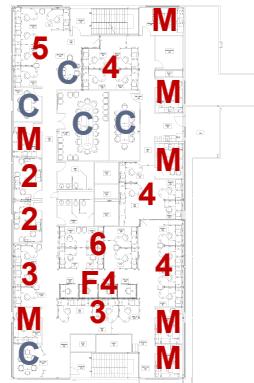
↓ Decrease in Conference over time

IGPP Objectives

- Address space priority for primarily Office needs
 - Vacate aging assets
 - Primarily Office-type buildings
 - Develop within M&O annual funds
- Provide increased collaboration opportunities
- Management – Collaboration – Work Group right-sizing

IGPP Strategy

- Laboratory and/or Training/Conference Flex Zone
 - Increased allocation over time
 - 704: First Floor (chemical quantity)
 - 730: Top Floor (HVAC cost)
 - 705: Any floor as required (adaptable over time)
 - Separate from Flex Office
 - 704: Decentralized office workgroups
 - 705: Clustered 5-6 person workgroup pods (NTK)
 - 730: Reconfigurable workgroups (2-6) in NTK pods.



Key Performance Indicators (KPIs)

- Cost / GSF:

704	730	705
\$ 378.52	\$ 345.45	\$ 348.07

<\$350/GSF

- NASF / GSF:

704	730	705
56.41%	70.83%	64.60%

>60%

- NASF Office / Occupant:

704	730	705
110.26	125.31	117.17

115 NASF/Occupant

- NASF Conference / Occupant:

704	730	705
13.65	27.07	31.61

25 NASF/Occupant

- Average Office and Work Station Grouping:

704	730	705
2.23	4.10	4.38

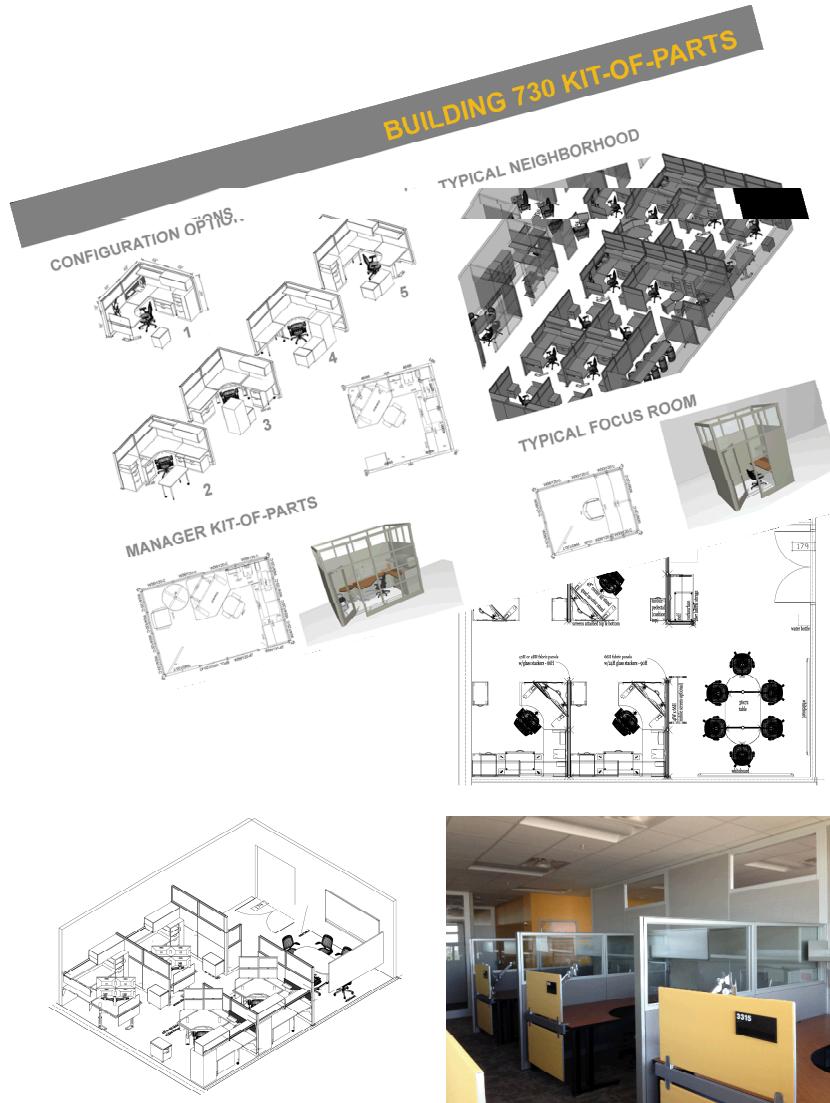
>4 Average

- Managers / Total Work Stations:

704	730	705
1:7.8 (15:117)	1:13.38 (8:107)	1:14.43 (7:101)

1:14 Average

Stakeholder Buy-In



- Early Stakeholder Identification
 - First Occupant Input
- Work Style Discussions
 - Work/Project constraints
 - Security vs. Privacy
 - Level of informal collaboration
- Similar Configuration Tours
 - Recently Completed
 - Vendor Showrooms
- Furniture Layouts
 - Design Input
 - Mock-Ups
 - Feedback

Pre-Occupancy Adjustments

- 704:
 - West facing glare issues
 - Request for higher panels (acoustical)
 - Mis-Matched user needs: Changed Occupant Group
- 730:
 - Conversion of 3rd floor to Closed Area
 - Conference Room Dividers
- 705:
 - Not Constructed/Occupied

Tradeline Three



1. Must understand the funding and development environment.
2. Differentiate “Security” versus Personal Control.
3. Must understand groups needs and compatibility with Flex/Open Office.

Presentation Contributors:

Malia Orell, AIA, LEED AP, NCARB – Site Strategic Planner, Sandia National Laboratories

Ann M. Koepp –Tactical Space Planner/ FIMS Administrator, Sandia National Laboratories

Bradford G. Skinner –Strategic Space Planner, Sandia National Laboratories

William Kitsos, LEED AP, PE, PMP – Site Strategic Planner, Sandia National Laboratories

Chad Twitchell, C.P.M., PMP – Facilities Business Operations, Sandia National Laboratories

Q/A



BACK-UP SLIDES

Presentation Objectives

- What are traditional organizations now doing to get high-efficiency, lower-cost, more collaborative space while meeting requirements for mixed office and technical functions, high space flexibility, and varying degrees of user group privacy and security?
- Chris Nesbit profiles new flex-work developments at Sandia National Laboratories and peer organizations, and deliver results to-date.