National Institute of Building Sciences

Demystifying Facility Transition Planning

Moving from Construction to Operational Readiness

Provider Number: **G168**

Course Number: **WE3A**

Date: **January 10, 2018**

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Course Description

For the long term operational success and viability of a new facility, operational efficiencies require attention and development during the design and construction phase which is heavily influenced by the high pressures imposed for schedule and budget compliance. If not planned well in advance, the transition from construction to operation can be chaotic.

A predictable opening day that can confidently deliver stable and reliable building performance is dependent on effective transition planning, transference of relevant facility asset information, and workforce preparation.

Learning Objectives

At the end of the this course, participants will be able to:

1 - Understand the difference between commissioning and operational readiness, activation, and transition (ORAT)

2 - Identify potential risks associated with transitioning a facility to operations

3 - Understand the critical elements of effective transition planning

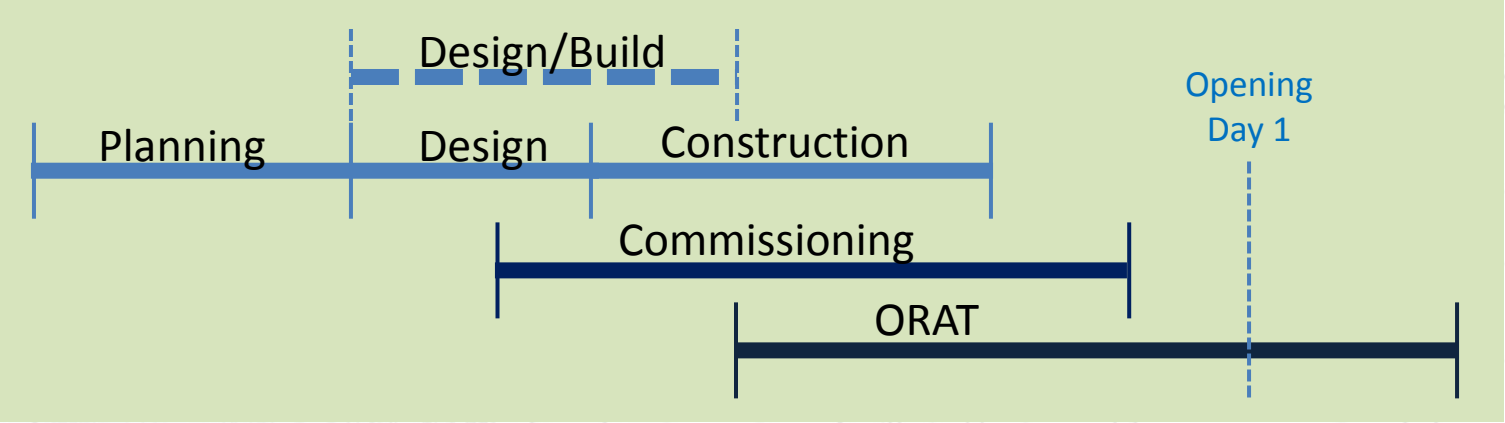
4 – Gain insight into strategic asset management

Agenda

1. Operations Readiness, Activation, and Transition (ORAT)
    - What is ORAT
    - Unique challenges
    - 3 key components
2. Generally applied to complex facilities. Examples:
    - Airports
    - Hospitals

Commissioning vs. ORAT

- commissioning – the process used to bring a facility to *static* completion.
- operational readiness, activation, and transition (ORAT) – the process used to bring a new or rejuvenated facility *from the state of static completion to normal ongoing operations*



what is ORAT?

- ✓ Transition Planning
- ✓ Operational Readiness
- ✓ Training and Familiarization
- ✓ Trials and Simulations
- ✓ Risk Mitigation and Contingency Planning
- ✓ Move and Relocation Logistics

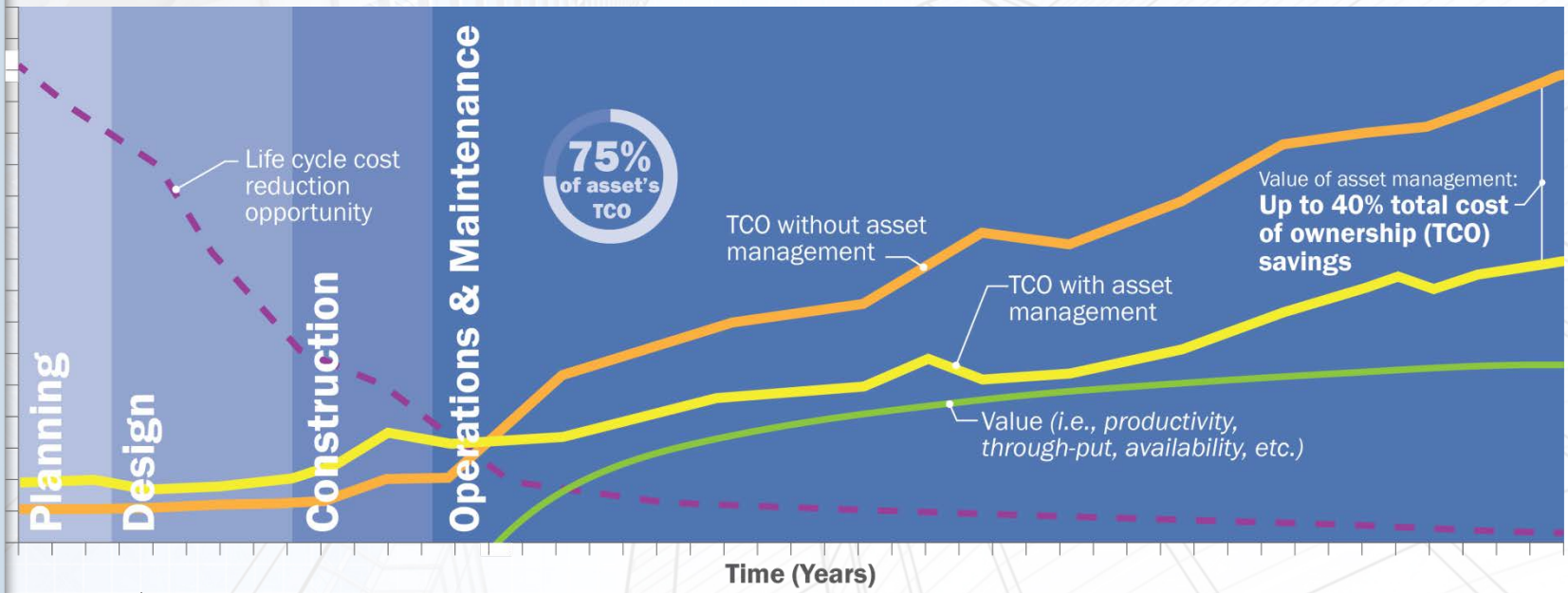
- ✓ Concept of Operations
- ✓ Public Relations
- ✓ Opening Day Requirements
- ✓ Post Occupancy Evaluations

Unique Challenges

- ORAT is very public
- Does not happen often
- Includes complex new systems, intricate new processes, and new individuals with diverse interests

- Activities include the transition and preparation of staff for new responsibilities and capabilities.
- Often a long period of time between initiation and completion of new facility projects

Risk/Opportunity Checklist

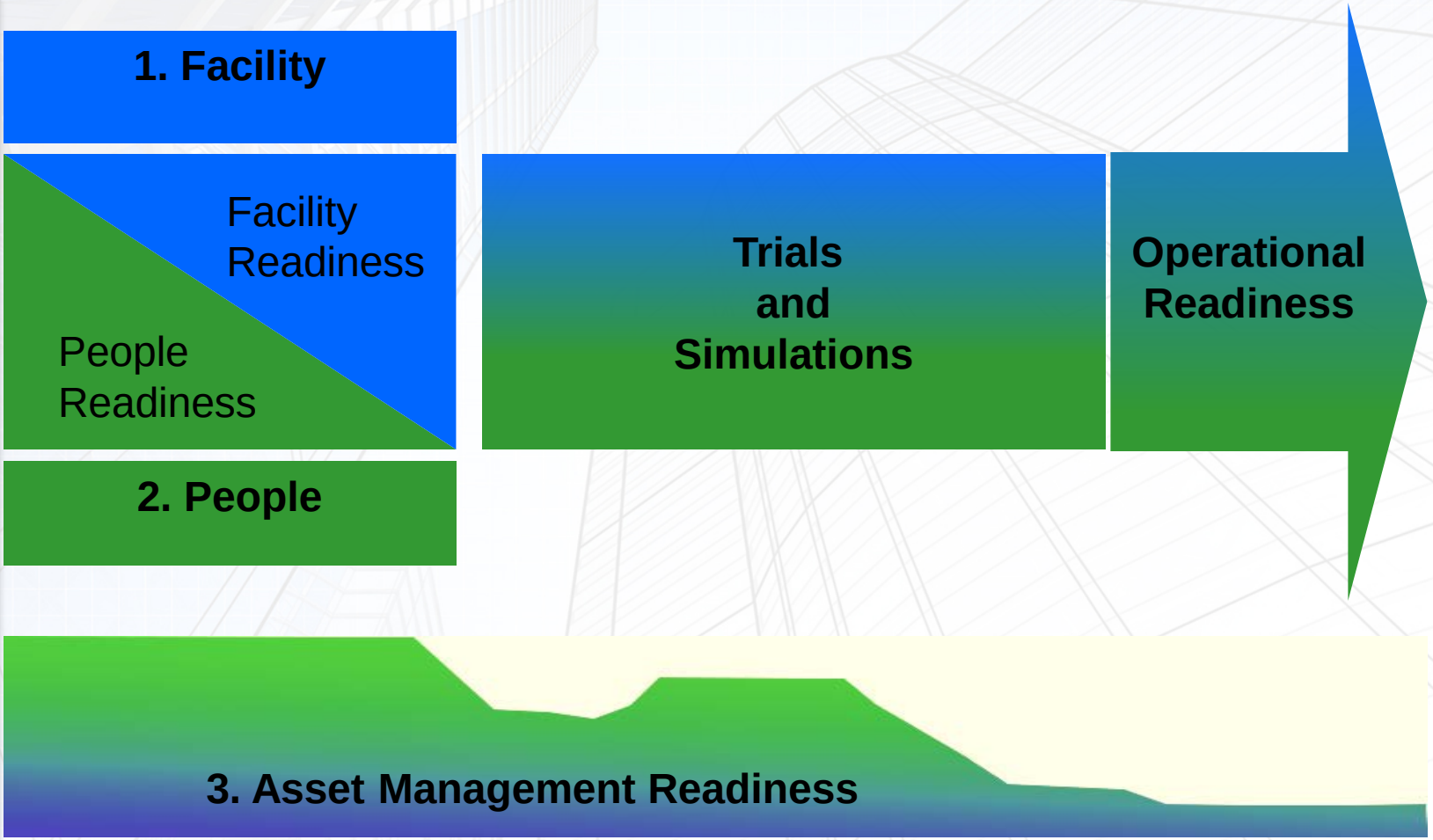


- ✓ Standardized Front-End Contract Documents
- ✓ Integrated ORAT Schedule
- ✓ Availability Requirements for use
- ✓ Life-Cycle based Decisions
- ✓ Attic Stock/Spares and Parts
- ✓ Maintainability Assessment Checklist (Location, Skills, Parts, Tools)

3 integral parts to transitioning a facility into ownership:

1. Facility Readiness
2. People Readiness
3. Asset Management Readiness

Operational Readiness



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1. Facility Readiness

- Commissioning static complete
- Trials & simulations
- Certificate of occupancy

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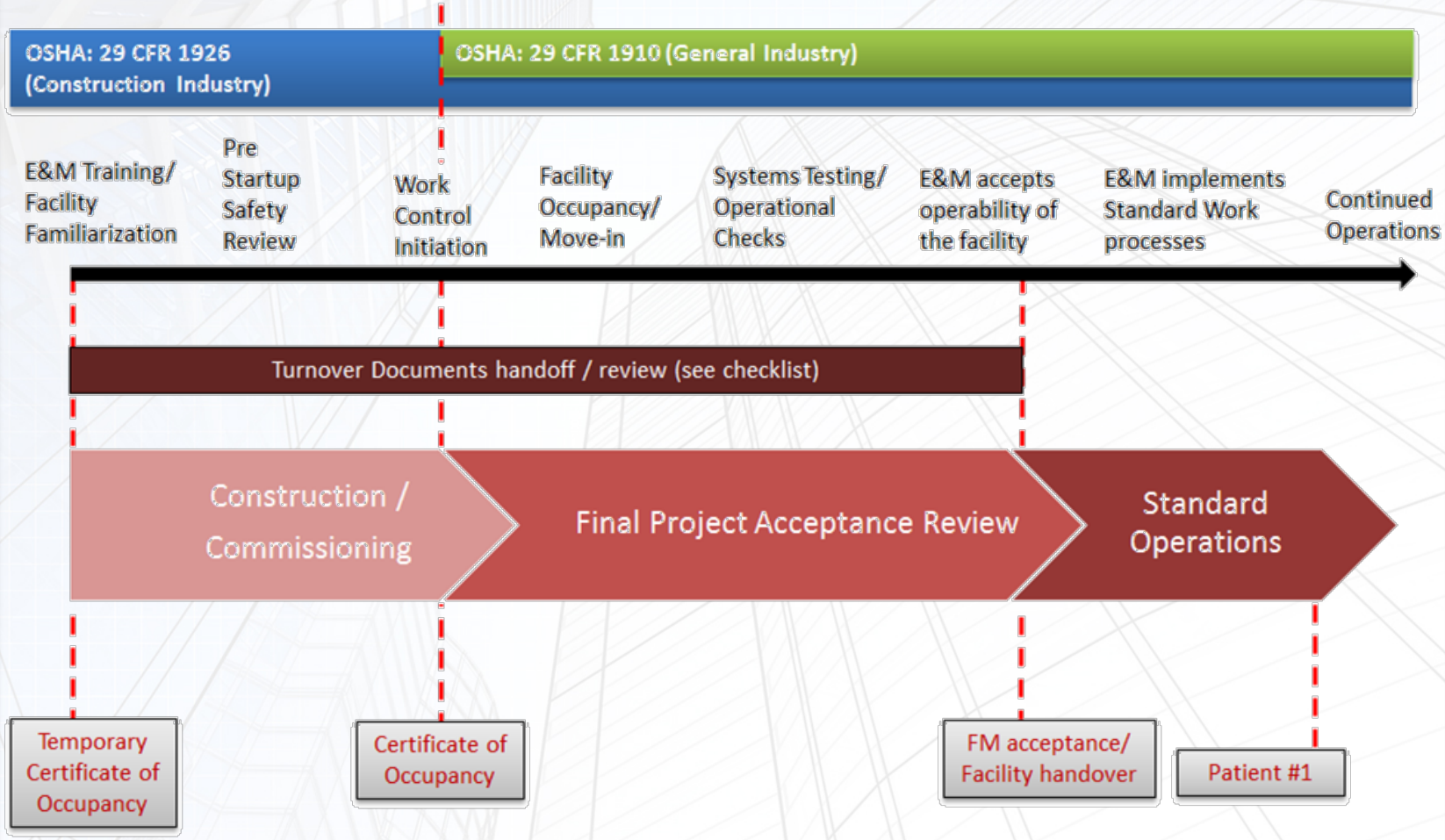
Operational Readiness Flow



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Typical activity checklist

Airport Operations						
Reference #	Status	Description	Comments	Assigned To	Start Date	End Date
OPS-1		**EMERGENCY PREPAREDNESS PLANS AND TRAINING**				
OPS-1.1		**Airport Certification Manual**		Birk	15-Dec-2012	30-Jan-2013
	☐	Review and update Airport Certification Manual (ACM).				
OPS-1.2		**Airport Emergency Plan**		Ramirez	15-Dec-2012	30-Jan-2013
	☐	Review and update Airport Emergency Plan and identify any requirements to revise as a result of Bradley West.	Supported by R. Pineda.			
OPS-1.3		**Evacuation and Repopulation Plan**		Ramirez	15-Dec-2012	30-Jan-2013
	☒	Review and update procedures for Evacuation and Repopulation Plan.				
OPS-1.6		**Drills and Operational Readiness Trials**		Ramirez	15-Dec-2012	30-Jan-2013
	☐	Develop scenarios for drills and operational readiness trials (ORTs).				
	☐	Execute plan for ORTs.				
OPS-2		**FIRE LIFE SAFETY SYSTEMS & PROCEDURES**				
OPS-2.1		**Fire and Life Safety Systems Facilities & Equipment**		Prasad	15-Dec-2012	30-Jan-2013
	☒	Obtain briefing on functionality of Fire & Life Safety Systems.				
	☐	Establish procedures related to emergency exit routes and fire doors- are kept clear of clutter and not used for storage and develop and or update inspection and Reporting Procedure.				
	☐	Obtain briefing on power distribution systems and emergency power systems.				
	☐	Verify that defibrillators (AEDs) are properly signed and readily accessible to the public.		Ramirez	15-Dec-2012	30-Jan-2013
	☐	Verify that appropriate egress signage and routes are accessible for public egress and posting of evacuation placards in the Terminal.				
OPS-2.2		**Fire & Life Safety - Ramp Equipment**		Mort	15-Dec-2012	30-Jan-2013
	☐	Verify that fire lanes are kept free of vehicles and equipment.				

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Trials & Simulations

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2. People Readiness

- Orientation
- Training
- Functional knowledge
- Trials / Dress rehearsal

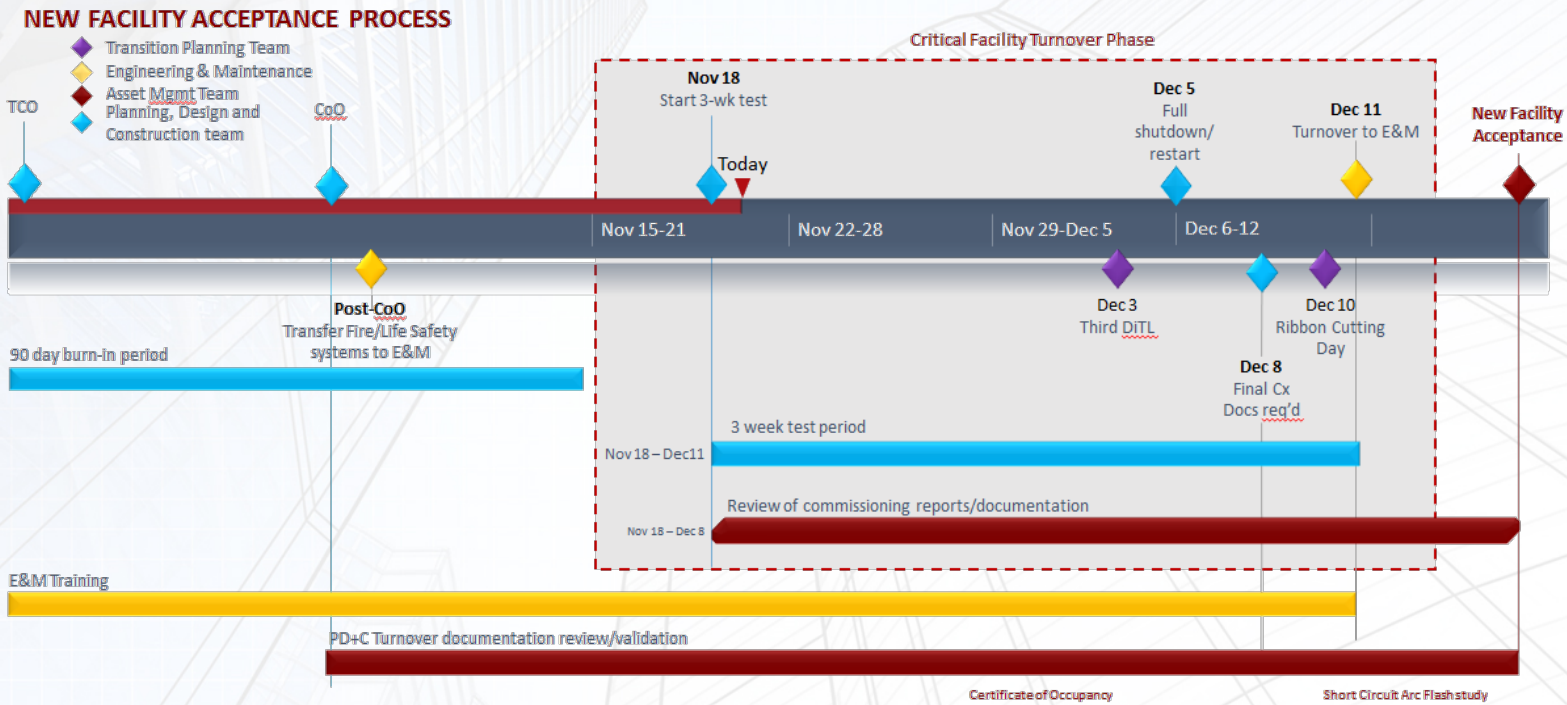
Airport Community Stakeholders

- Administration
  - Human Resources
  - Procurement Services
- Airport Development Group
- Airport Operations
- Airport Police
- City Fire Dept
- Commercial Development Group
  - Terminal Concessions
  - Terminal Media
  - Duty Free
- Customer Services
- Environmental Services
- Facilities Management Group
  - Engineering
  - Maintenance Services
- Federal Inspection Services
  - CBP
  - TSA
- Information Technology
- Landside Business Management
- Media Relations
- Regulatory Compliance & Standards
- Security
- Concessions Operators

Workflow


Initial Input
Stakeholder Groups
Milestone Functions
Activation Working Groups
Focused Planning
Organizational Collaboration
Detailed Planning
Event and Task Definition
Action, Execution
Testing, Trials and Simulations
Milestone Complete
Activation

Facility Acceptance Process



Development of pre-occupancy documentation/AM standardized

- Equipment Schedules
- Preventive Maintenance Program
- Predictive Maintenance Program
- Critical Equipment Inventory & Part List
- Single Line Diagrams for all systems (electrical, mechanical, vacuum, med gas, etc)
- System vendor contact matrix
- LOTO procedures
- Life Safety drawings
- Hazardous Materials Business Plan
- Safety Plan
- Emergency Response Plan
- Statement of Condition (?)
- RACI communication matrix for interim opening

- Certificate of Occupancy
- O&M manuals
- Basis of Design
- Manufacturer warranties and registration
- Recommended spare parts list (for each system)
- As-built drawings - dwg and pdf format
- Equipment tables - excel format
- Operating, Engineering and Maintenance (OEM) documents for Facility and Medical Equipment
- Punch list with all items addressed or noted as not in scope
- Electronic copies of all software programs
- PCRA/ICRA/ILSM for all remaining construction activity
- Cx Plan
- System / Equipment Acceptance Testing Summary
- System / Equipment FIV (Field Inspection Verification)
- System / Equipment FAT (Functional Acceptance Testing)
- System / Equipment OAT (Operational Acceptance Testing)
- System Partial Capacity Testing
- Testing and Balance Report

- Short Circuit Arc Flash study
- Breaker testing data
- Infrared report
- Cx Report (discrepancies noted have been corrected)
- Sequence Of Operation
- Controls & Alarms
- System Start-Up Procedures (Manual & Auto)
- System Shutdown Procedure (Manual & Auto)
- Building Information Model (BIM)
- Software
- Training Videos
- Critical spare parts

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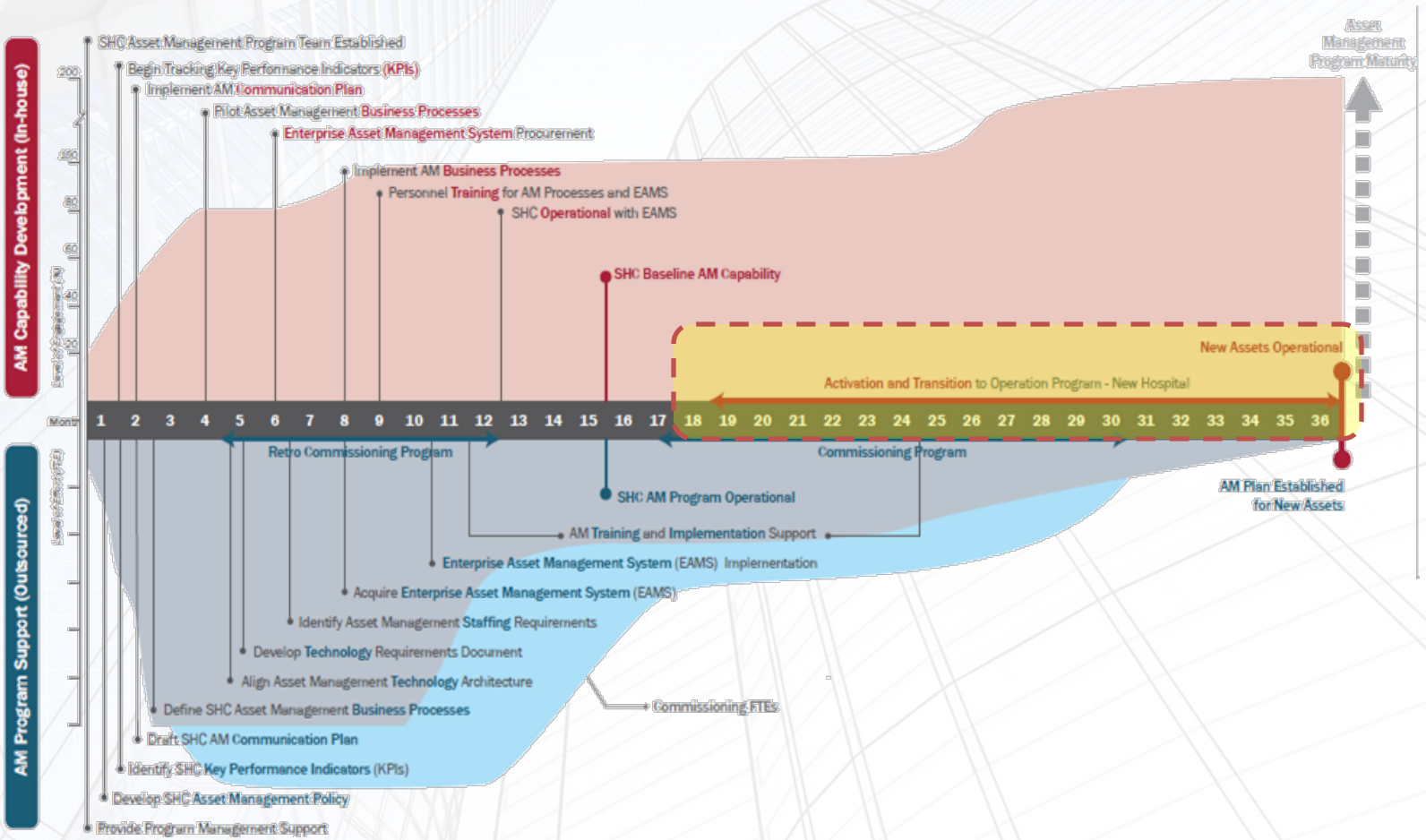
3. Asset Management Information

Defined ownership strategy

- Identified regulatory requirements
- Clear connectivity to organizational outcomes
- Integrated Asset Management System
- Space management plan
- Warranty management
- Vendor procurement services
- Specialized skills and expertise

Don’t confuse ***data*** with ***information***

AM Road Map


AM Capability Development (In-house)
AM Program Support (Outsourced)
Asset Management Program Maturity
SHC Asset Management Program Team Established
Begin Tracking Key Performance Indicators (KPIs)
Implement AM Communication Plan
Pilot Asset Management Business Processes
Enterprise Asset Management System Procurement
Implement AM Business Processes
Personnel Training for AM Processes and EAMS
SHC Operational with EAMS
SHC Baseline AM Capability
New Assets Operational
Activation and Transition to Operation Program - New Hospital
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Retro Commissioning Program
Commissioning Program
AM Plan Established for New Assets
SHC AM Program Operational
AM Training and Implementation Support
Enterprise Asset Management System (EAMS) Implementation
Acquire Enterprise Asset Management System (EAMS)
Identify Asset Management Staffing Requirements
Develop Technology Requirements Document
Align Asset Management Technology Architecture
Define SHC Asset Management Business Processes
Draft SHC AM Communication Plan
Identify SHC Key Performance Indicators (KPIs)
Develop SHC Asset Management Policy
Provide Program Management Support
Commissioning FTEs

Key Performance Indicators

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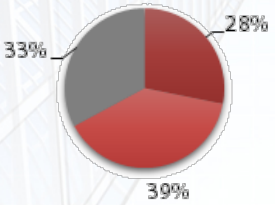
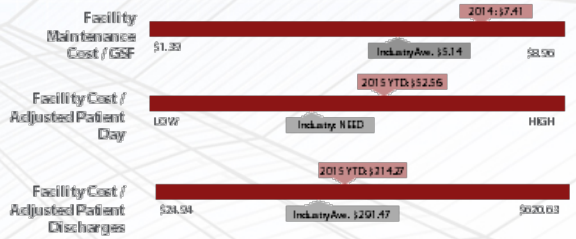
FACILITY METRICS

SHC Main Campus
Total Sq. Ft: 1.7 million
FIS: FY 2014 $35.8 million

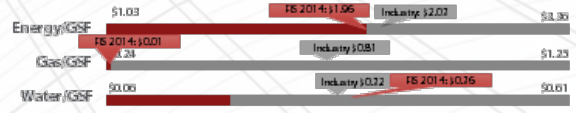
COST BREAKDOWN



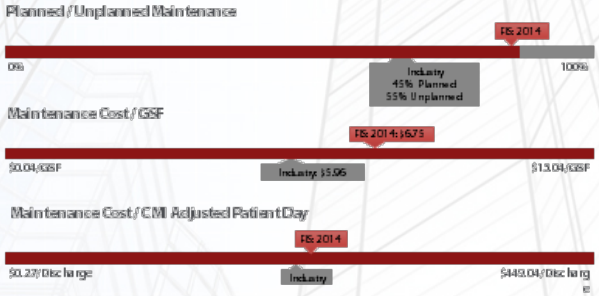


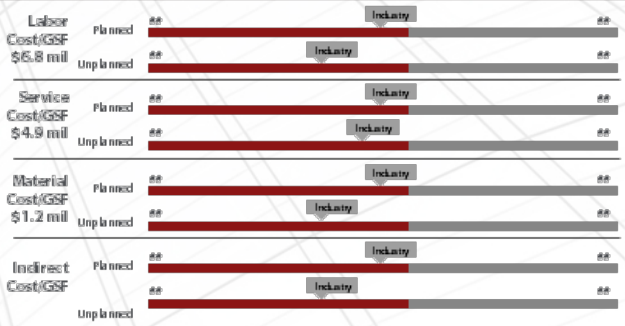
FACILITY METRICS

Utility Cost
$12.2 million

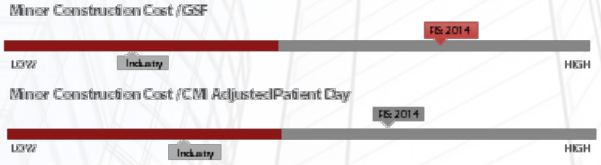


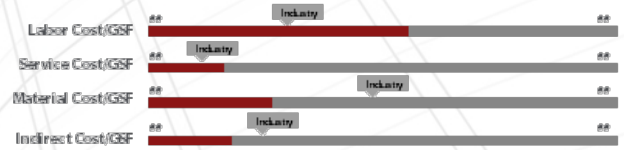
Maintenance Cost
$12.6 million





Minor Construction
$14 million





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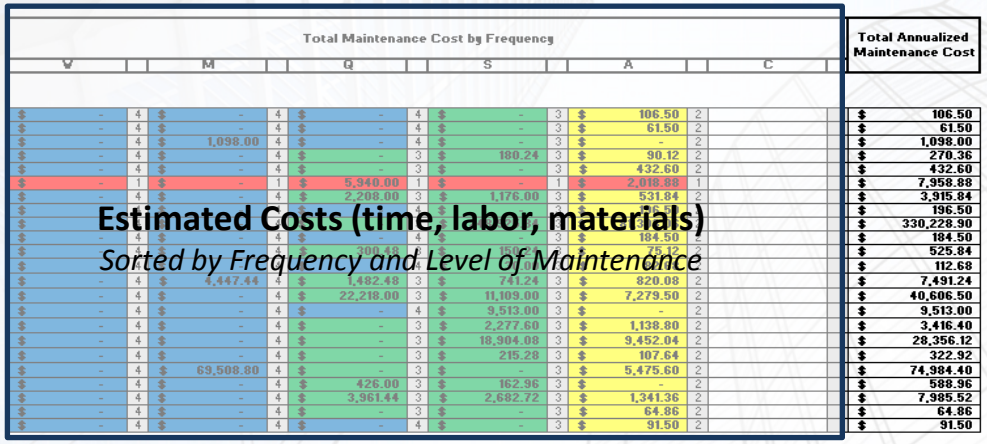
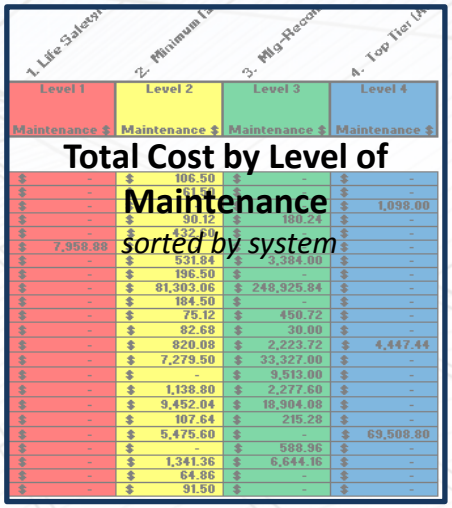
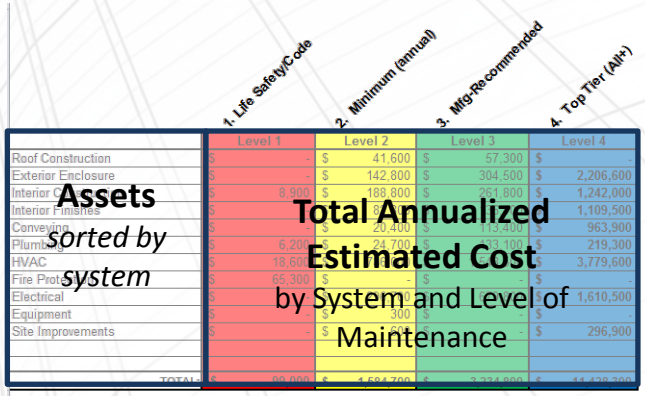
Asset Investment Model





- Assets sorted by system
- Estimated costs sorted by frequency and categorized by Level of Maintenance
- Total estimated cost by system and frequency
- Total cost by Level of Maintenance
- Annualized Estimated Cost by system, Frequency, and Level of Maintenance
- Total Estimated Cost



Warranty Best Practices

1. Require all Design/Construction activities to provide your required submittal requirements for warranties and the place to control/mandate that is in the specs (not the drawings or some BIM tool).

2. Require that the construction effort ensure that all warranties commence at final acceptance versus at interim beneficial use or similar events (Day 1).

3. Clearly identified warranty items with warranty tags on critical components and work spaces. This typically occurs post construction during ORAT.

4. Update/Revise the work management/workflow process for maintenance and repair (both processes and any work management system) to require validation of warranty status.

Facility Transitions to Operations When:

- Facility confirmed ready
- People confirmed ready
- Asset management strategy in place

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