Project Management for Clinical Engineering
Strategies for Proactive Equipment Planning

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Project Manager – Equipment Planner

Smart Builds Start With Us
About Northstar

- Founded in 1998

- Comprehensive approach in the development and implementation of their facility plans which results in best value solutions that meet the client's business objectives

- An independent resource, Northstar ensures that the owner's best interests are represented throughout the entire planning, design and construction process
Northstar Philosophy

- Use Clearly Defined Project Objectives
  - Evaluate and understand the client's needs / expectations (strategic business plan, etc)
  - Document and consistently communicate objectives
  - Ensure that all project team members understand objectives
  - Measure success based on defined project objectives

- Use a Project Management Plan
  - Identify project objectives to be accomplished by phase
  - Identify the process required to accomplish each objective
  - Identify decisions required (by who and when) to accomplish each objective
  - Identify project team members required to accomplish each objective
  - Use management / communication tools

- Ensure Timely Decision Making
  - Establish clear lines of authority
  - Provide sufficient information to ensure informed decisions are made
  - Provide sufficient review time with specific decision dates identified

- Select the Right Project Team
  - Use a comprehensive selection/interview process (experience, role, chemistry, specific services, etc)
  - Use comprehensive consultant contracts (architect, engineer, constructor)
  - Establish / maintain ownership of project objectives with all stakeholders
<table>
<thead>
<tr>
<th>Owner Team Level of Support</th>
<th>Planning</th>
<th>Design</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Leadership Group</td>
<td>6-8 hr/wk each person, 8-12 hr/wk Project Executive</td>
<td>6-8 hr/wk each person, 12-20 hr/wk Project Executive</td>
<td>3-6 hr/wk each person, 10-16 hr/wk Project Executive, * +50% during Move Planning Phase</td>
</tr>
<tr>
<td>VP/Director Group</td>
<td>6-8 hr/wk each person</td>
<td>12-20 hr/wk each person</td>
<td>6-8 hr/wk each person, * +50% during Move Planning Phase</td>
</tr>
<tr>
<td>Department Manager Group</td>
<td>4-6 hr/wk each person</td>
<td>6-8 hr/wk each person</td>
<td>4-6 hr/wk each person, * +50% during Move Planning Phase</td>
</tr>
<tr>
<td>Project Management Group</td>
<td>40-60 PM hr/wk, &amp; 10-20 Planner hr/wk</td>
<td>80-90 PM hr/wk, &amp; 10-20 Planner hr/wk through Schematic Design</td>
<td>60-80 PM hr/wk, &amp; 40 hr/wk On-Site Oversight/Coordination</td>
</tr>
</tbody>
</table>
Do construction projects make you feel like this?
Equipment Management Process

- Review flow diagram
- Break apart into individual sections
- Provide examples from a current project
- Discuss global equipment considerations and resources
Equipment Management Process

**Approval to Proceed**

**Step 1**
- Programming
- Create Preliminary List.
- Preliminary List based on user input and architectural program.
- Assign budgetary dollars to each listed item.

**Step 2**
- Schematic
- Redefine Preliminary List to conform to Project Objectives or follow Admin. direction.
- Define major equipment components and distribute to team.
- Begin assembly of project specific EQ spec book.
- Track equipment changes.

**Step 3**
- Design
- Review specific EQ specs with users and final select/approve equipment.
- Specific equipment specification sheets are distributed to design team.

**Step 4**
- Construction
- Incorporate equipment specifications into project documents.
- Issue Purchase Orders for Major Medical Equipment

**Step 5**
- Construction
- Receive/Inspect equipment for install.
- Perform necessary action to correct equipment deficiencies.
- Monitor construction for quality and compliance with equipment specifications.

**Step 6**
- Construction
- Install equipment in designated locations.
- Train support groups and end users.
- Assemble operation and maintenance manuals
- Close project budget.

**Step 7**
- Project Review
- Review Equipment Procurement Process with all parties involved and recommend changes for approval.

**Approval to Proceed**

**Step 8**
Step One - Programming

- Create a preliminary list
- Understand all categories to be included, i.e. artwork, signage, IT, clinical, furniture, installation, other
- Review the preliminary list with user group and update
- Compare to the architectural program
- Assign budgetary dollars to each listed item
Step One - Programming

- Review any historical database information on past projects

LDR Example:
- Reviewed equipment list from 2008 project: 1 c-section, 3 LDR and 5 recovery bays.
- $900,000 equipment budget
- Validated gray areas
Step One - Programming

Extrapolate equipment list and budget with escalation and contingency to proposed new model: 6 c-section, 31 LDR, 11 bed recovery plus support.

<table>
<thead>
<tr>
<th>600</th>
<th>MEDICAL EQUIPMENT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>602</td>
<td>Fixed Equipment 6th floor Children's Tower for L &amp; D Rooms</td>
<td>3,000,000</td>
</tr>
<tr>
<td>602</td>
<td>Fixed Equipment 7th floor Children's tower for L &amp; D, C-Section Rooms</td>
<td>5,000,000</td>
</tr>
<tr>
<td>602</td>
<td>Fixed Equipment 1st floor Children's tower for birthing center, WEU, Registration</td>
<td>3,350,000</td>
</tr>
</tbody>
</table>
Step One - Programming

- Vendor Fair Evaluation Summary
- 98 attendees

<table>
<thead>
<tr>
<th>Product</th>
<th>Vendor 1</th>
<th>Total Vote 1</th>
<th>Vendor 2</th>
<th>Total Vote 2</th>
<th>Vendor 3</th>
<th>Total Vote 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthing Bed</td>
<td>Hill Rom</td>
<td>7</td>
<td>Stryker</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OB/Gyn Stretcher</td>
<td>Hill Rom</td>
<td>5</td>
<td>Stryker</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant Warmer</td>
<td>GE</td>
<td>24</td>
<td>Draeger</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultrasound</td>
<td>Sonosite</td>
<td>7</td>
<td>MindRay (not in attendance)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrosurgical Unit</td>
<td>Conmed</td>
<td>18</td>
<td>Valleylab</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fetal Monitor</td>
<td>Philips</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam Lights</td>
<td>Steris</td>
<td>14</td>
<td>Berchtold</td>
<td>4</td>
<td>PIC Medical</td>
<td>5</td>
</tr>
<tr>
<td>OR Lights</td>
<td>Steris</td>
<td>20</td>
<td>Berchtold</td>
<td>5</td>
<td>PIC Medical</td>
<td>4</td>
</tr>
<tr>
<td>LDR Lights</td>
<td>Steris</td>
<td>9</td>
<td>Berchtold</td>
<td>4</td>
<td>PIC Medical</td>
<td>9</td>
</tr>
<tr>
<td>OR Table</td>
<td>Steris</td>
<td>13</td>
<td>Berchtold</td>
<td>9</td>
<td>PIC Medical</td>
<td>1</td>
</tr>
</tbody>
</table>
Approval to Proceed

- Redefine preliminary list to conform to project objectives and follow administration direction
Step Two - Schematic

- Review major equipment components and distribute to the team
- Begin assembly of project specific equipment specification book
- Track equipment changes
Step two – Schematic

7th floor:
LDR rooms,
Pre/Post and C-section
Step Two - Schematic
Step Two – Schematic

### LDR equipment list

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Model</th>
<th>Description</th>
<th>Quantity</th>
<th>Rate (Hr)</th>
<th>Hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDR-1</td>
<td>ABC</td>
<td>LDR equipment</td>
<td>10</td>
<td>$120.00</td>
<td>100</td>
<td>$1,200.00</td>
</tr>
<tr>
<td>LDR-2</td>
<td>DEF</td>
<td>LDR equipment</td>
<td>5</td>
<td>$240.00</td>
<td>120</td>
<td>$6,000.00</td>
</tr>
<tr>
<td>LDR-3</td>
<td>GHI</td>
<td>LDR equipment</td>
<td>20</td>
<td>$300.00</td>
<td>300</td>
<td>$6,000.00</td>
</tr>
</tbody>
</table>

**Total**:
- Total Hours: 450
- Total Cost: $13,200.00

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**Notes**:
- Additional equipment needs to be ordered for the upcoming project.
- Scheduling conflicts with current projects need to be resolved.

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Northstar
Step Two – Schematic

LDR Room

LDR Bathroom
Step Two – Schematic

C-Section

Pre/Post
Step Two - Schematic

- Supply Workout
- Mock Design
Step Three - Design

- Review specific equipment specifications with users and final approve equipment
- Specific equipment specification sheets are distributed to design team
Step Three – Design

C Section Simulation

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## LDR Project Example

### Step Three – Design

<table>
<thead>
<tr>
<th>Code</th>
<th>Item Description</th>
<th>Date Logged</th>
<th>Completion Date</th>
<th>Comments / Status / Decision Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDR</td>
<td>Linen Pars for LDR rooms to determine cabinet size</td>
<td>8/23/11</td>
<td>Barb and Mary Oberman to meet and mock-up on a cart</td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Software from Innerspace to ease programming of carts</td>
<td>8/24/11</td>
<td>EM to Kim Z 9/12</td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Special cart configuration for Heli Rom delivery cart</td>
<td>8/24/11</td>
<td>Waiting to finalize design and pricing with Chris Schwarz</td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>LDR lights - must have wand ?</td>
<td>9/13/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Mobile lights for LDR rooms - how many per team?</td>
<td>9/13/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Mobile light or ceiling light in Pre/post?</td>
<td>9/13/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Validate pharmacy omnicell components and new vs. relocate</td>
<td>9/30/11</td>
<td>EM to Sandy</td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Will we need anymore infusion pumps - brains and pumps</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>TV mount - which one will provide the best flexibility</td>
<td>9/30/11</td>
<td>9/30 EM to John O'Reilly - SA740P can extend 20&quot;</td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Gel warmers - yes or no</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Fetal monitor - quote review on 10/18, want wireless to look at and show staff.</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>How are we going to mount?</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Delivery cart - one per room - how many extra?</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Labor/Admit cart - one per room - how many extra?</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Dry erase in patient room - standard 2x3</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Phones - how many and where? Nurse and Baby?</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Glove box dispenser - sink and baby area?</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>FS blanket warmer on drawing - did not see next to linen on 7th floor drawings</td>
<td>9/30/11</td>
<td>Need to em Jim H</td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Validate atomic clock locations - LDR, c-section, OB fringe, Pre/post</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Recycle on wheels or use blue bag with x-frame hamper</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>Healthradio - iPod docking station - design criteria</td>
<td>9/30/11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Approval to Proceed

- Redefine equipment specific list to conform to project objectives and budget.
- Follow direction from Administration
Step Four - Construction

- Incorporate equipment specifications into project documents
Step Four - Construction

- Issue purchase orders for major medical equipment
Step Five - Construction

- Receive/Inspect equipment for install
- Perform necessary action to correct equipment deficiencies
- Monitor construction for quality and compliance with equipment specifications
Step Six - Construction

- Install equipment in designated locations
Step Six - Construction

- Train support groups and end users
- Assemble operations and maintenance manuals

**Burn Center Education**

Dates: November 28th, 29th and 30th

- 8:00-8:15 Orientation to the Floor (Manager)
- 8:15-8:45 Cisco Wireless/Desk Phones (Lee Deerhofer)
- 8:45-9:00 Break
- 9:00-9:30 Zettler Nurse Call (Phil Colombo)
- 9:30-10:00 Life Safety (Bob Long)
- 10:00-10:30 Tub (Anja Vendza)
- 10:30-11:00 Lifts (April)
- 11:00-11:45 Lunch
- 11:45-12:15 Workflows (April)
- 12:15-1:00 Scavenger Hunt
Step Six - Construction

- Close project budget
Step Six - Construction

Move in time!

- Commissioning
- Schedule
- Resources
- Availability
Step Seven – Project Review

- Review equipment procurement process with all parties involved and recommend changes for approval
Key Strategies

- Iterative Process
- Earlier engagement the better
- Consider technology intensive spaces – Radiology, Surgery, ICU
- Communication! Relationships!
- New Technologies
Resources

- Clinical Engineering
- IT
- Group Purchasing
- ECRI
  - Healthcare Product Comparison System
  - Sourcebase
- Me!
Questions/Comments