

Post Project Evaluation (PPE) – Projects costing less than £5m – 2014/15 Lessons Learned Summary

Theme	Lessons Area	Outcome	Recommendation
Project Management	Successful User Group involvement	Projects were successful with each user group having a nominated lead with delegated authority to sign off and approve layouts. In general the groups were very focused and had clear development requirements.	Main capital schemes to continue with high quality User Group Involvement.
Project Management	Change Control	Change Control was managed generally by the Estate Team with User Group involvement as appropriate. However difficulties arose where Projects were under considerable budget and programming pressures and where physical unavoidable difficulties were encountered requiring instant decisions, or where assumptions on service need changed necessitating the exclusion or inclusion of related provisions.	Consideration of advance works to improve the identification of possible physical difficulties could improve cost control and programming, although probably not the final cost. However this might mean a financial commitment before main projects are committed.
Project Management	IM&T input	IT and telecoms service delivery teams were involved in the early planning of the schemes. This generally	Continue to involve ICT from an early stage of projects but identify a lead for each one. This will allow effective

		<p>worked well, however some of the IT planning in line with the construction delivery was not monitored effectively and construction changes impacting on the IT were not actioned until later in the commissioning phase. In addition difficulties were experienced on some projects with the operating strength of Airwave and this was not highlighted until nearly the end of some projects.</p>	<p>monitoring of delivery of IT. Also alert Airwave Team from and early stage to facilitate early surveys on strength of Airwave system which will identify if boosters are required.</p>
Project Management	Infection Control and Sluice / Laundry expectations	<p>Despite having an agreed and signed off COI requirements document further alterations were required at some sites at commissioning stage to deliver fully compliant decontamination facilities.</p>	<p>Highlight decontamination as a design and construction risk on all projects until full interpretation of the guidance established. More rigorous sign off procedure to be adopted with COI Team.</p>
Project Management	The business case process	<p>The delivery of the Full Business Cases (FBC's) for the projects was a fully collaborative effort from key members of staff and Estates. The early involvement of the key individuals helped all to understand the aims, what their detailed contribution was to be and how the whole document was to be</p>	<p>Adopt a collaborative approach to production of all future business cases and reinforce the importance of the understanding of and requirement for this part of the process to justify planned capital investment.</p>

		structured. The team gained a better understanding of the areas that were not their key responsibility and how these contributed to the whole process. The cases were coordinated by one individual within the teams.	
Project Management	Cost reporting v cost control	Generally the QS had only been reporting on cost. This was not sufficient to meet a cost control remit and more collaboration with the whole design team and Project Manager was required to understand the whole budget and how the scheme had to be delivered within this.	Project briefs for appointment of QS services to be clear on the role and remit of cost reporting and cost control requirements and the potential impact on budget constraints as a whole.
Project Management	Cost	Changes in costs caused delays in project	Early cost forecasting would have prevented frustration and improved the speed of the project
Project Management	Cost control	Retro fitting of items removed in cost cutting exercise	Realistic project costs and evaluation of effects of removing items as retro fitting can be a more expensive option
Project Management	Cost Management	There was a cost increase from outline business case to Target Price agreement for the Building services. A detailed	With hindsight, the building services design was behind programme (due to the need to re-work initial design drawings

		<p>examination at the time of Target Price agreement was undertaken to establish the reasons for this variance.</p>	<p>due to their own errors in noting the building footprint and main services runs) and therefore the scope at the time of the initial cost plan was under developed. The uncertainties and design development may therefore not have been communicated adequately to enable the PSCP and the Cost Advisor to consider contingencies and risk and also building works (cavity barriers, suspended ceiling removal etc).</p> <p>In future, to try and overcome this, we would seek to ensure that the PSCP had reviewed thoroughly the cost plan (with his designers) prepared by the Joint Cost Advisor, including asking them to sign this off in agreement.</p>
Project Management	Successful User Involvement	<p>The staff were made aware of the technical and practical problems that had to be overcome during the project. Only when the project commenced did they take full awareness of the impacts</p>	<p>Users are required to dedicate sufficient time to consider the risk and impact of the project as a condition of project approval.</p>

Project Management	Project Management	Project managers carried out a number of project management sessions for all staff.	Project management awareness training to be continued to be provided to staff.
Project Management	Contract Management and Control Procedures	Robust Project Management procedures and NEC3 Framework Scotland tools, processes and procedures were implemented. This included programme management, risk management, value engineering, design reviews, progress monitoring and handover procedures.	Project Manager PSC appointment and PSCP Construction Manager appointment was critical to the excellent standards of contract management throughout. The framework competition and appointment procedure enabled us to engage the most appropriate, competent and experienced individuals for our project scope and nature.
Project Management	Infection Control	Early meetings with Infection Control staff clarified any issues between users, designers and the contractors in respect of the scope of the works and the management of the works in a theatre.	Dedicated single ICT point of contact to continue.
Project Management	Communication	Meeting dates and locations pre agreed for the length of the project with no variations resulted in early risk management	Project meetings times and locations are continued to be agreed for the life cycle of the project in advance.
Project Management	Communication	Agreed communication plan with all stakeholders	All projects should have a communication plan.

Project Management	Management of team	No integrated working	Rather than being micromanaged the whole team should work as a collaborative to benefit the programme which would reduce duplication and allow for early problem solving.
Project Management	Quality control of subcontractors	The main contractors were excellent however there were instances of subcontractor problems in areas such as flooring, heating and installation of blinds.	The main contractor should ensure processes are in place to monitor subcontractor activity.
Project Management	Working with sub-contractors	Inadequate supervision of sub-contractors	Ensure main contractor has effective management and control of specialist sub-contractors
Project Management	Time delay	Time delay in between initial instructions to design team and progressing project resulted in additional design costs	Maintain progress with projects to reduce potential for changes arising during long spells of inactivity. Cost implicating delays should be built into cost reports using BCIS indicators.
Project Management	Assumptions	Assumptions made about transferrable equipment. Existing equipment earmarked for transfer was found to have exceeded its working life expectancy so major repair and replacement was required.	Survey of existing equipment to ensure that it is fit for transfer or to identify costs for replacement

Project Management	Enabling works	Enabling works identified gaps in planning where office accommodation had not been provided within the project with assumption being made that space would be found elsewhere	Gaps in planning can lead to additional costs. Risk register may assist in identifying gaps
Programme Management	Project Prioritisation	The Board have approved a standard project prioritisation matrix which enables the clinical and technical risks of individual projects to be prioritised. Clear criteria have enabled a prioritised list of projects for the financial year and future years (subject to funding).	Programme management prioritisation matrix to be continued but process to be reviewed on an annual basis by Capital Management Group.
Project Management	Project programme timeline	Compliance with project programme	Ensure effective monitoring and honest reporting of compliance with project programme
Project Management	Funding	Funding issues around service redesign	Secure adequate resources for necessary service redesign around future projects by ensuring robust cost predictions at business case stage
Project Management	Ownership	Ensure appropriate integration and ownership by sector management.	Project this size should have a full time designated person to manage this

Project Management	Management	Need for stronger supply chain management by PSCP	Ensure PSCP implement their strategy for management with more detailed scrutiny
Construction	Systems Training	Standard demonstrations / training on all systems with relevant operational staff / users at all sites were undertaken prior to handover and was recorded for reference purposes.	Contracting and Estates teams to collaborate over initial production of Planned Preventative Maintenance schedules.
Construction	Programming	Specialist contractors did not factor in the location / transport issues.	All tender documents will highlight transport issues to our location.
Commissioning	User Commissioning Manager	The allocation of a dedicated Commissioning Manager on each project (an operational member of staff) allowed for the Project Manager to focus on the project delivery and a CM to manage all staff through a detailed packing, moving and unpacking process to allow successful operation of the new project on time.	For reasonably sized and complex main capital schemes, continue to encourage the appointment of a CM from the operational user group, introducing them to the project team at an early stage which will give them sufficient time to understand the project and plan resources for the move.
Commissioning	Equipment Procurement	Equipment ordering, delivery, installation and management of costs against budget was successfully coordinated for all projects by the in-house estates team.	Utilise similar resource from the estates team on all capital schemes.

Commissioning	Handover	Handovers were generally successful. However difficulties were experienced where timescales to achieve completion to meet complex interlinked situations or operational need were extremely tight.	Where possible more time should be allocated to complete and commission projects and programmes should be created which reflect the importance of this stage.
Commissioning	Commissioning and Handover	O&M manuals information was inaccurate (eg “as built drawings” were essentially design drawings marked as “as built”, still showing “connect as appropriate” etc. Maintenance information sometimes lacked and generic information was included that was not relevant. These are not unique or uncommon problems in this industry, hence NES disappointment at this being presented by the PSCP and then not picked up by our Supervisors.	O&M Manual review meetings were held at the end of the first phase, agreeing the content/structure and format well in advance of the first phase handover. The PSC Supervisors appointment did also ensure that there were sufficient hours allowed for this activity. Lesson learned – feedback to HFS for the Framework for consideration.
Commissioning	Estates Staff	Estates staff actively attended and were proactive in the commissioning progress enabling better understanding of systems and fault finding	Estates staff to attend all commissioning.

Commissioning	Post Occupancy performance	Given the gas supply issue and the problems that arose in providing IT services in the new building, further time in the commissioning period would have allowed for these matters to be rectified before the facility opened to staff / patients / members of the public.	Ensure adequate time within the commissioning period
Commissioning	Equipment	Whilst the specification for the main production kitchen equipment had been developed early in the project, often down to make and model number, there was still some confusion when it came to the fit out of the main kitchen which resulted in last minute changes on site.	It would therefore be useful to develop an equipment responsibility matrix, particularly for any specialist equipment, and have all parties i.e. NHS and contractors, sign off this document before the commencement of the construction stage.
Commissioning	Defect period	Snagging and defects procedure must be managed to reduce issues after handover	More robust tracking and management of defects and snagging lists along with early programme and co-ordination of action
Planning of the Scheme	Early Warning	Early warning of proposed projects has enabled key stakeholders to identify risks at an early stage which enable early mitigation to be discussed.	The stakeholders continue to present in person their Initial Proposal to CMG for prioritisation.

Planning of the Scheme	Increase in traffic	Not identified as an issue or cost in the original estimate but later issues regarding health and safety for existing receipt and dispatch areas had to be addressed incurring additional costs.	Impact of traffic and any costs involved now included on Capital Projects Checklist
Planning of the Scheme	Surveys	These were carried out in advance of the project to identify issues for design but existing plans were not always available, or accurate and not all areas could be surveyed while the premises were occupied and operational and issues were discovered during the project once works had begun	Accurate and up to date plans are essential in planning and preparing accurate project costs
Planning of the Scheme	Tendering process	Lack of choice of providers	Allow more time for tender process to encourage a better choice of providers with the appropriate knowledge and experience for the particular project
Planning of the Scheme	Ground surveys	Laying of foundations was problematic	Appropriate ground surveys must be carried out to identify services or other obstacles
Planning of the Scheme	The Importance of recognizing detail	Delays in obtaining appropriate documentation such as building warrant led to delays in project	Attention to detail of appropriate requirements by design team especially when dealing with listed buildings

<p>Planning of the Scheme</p>	<p>Technical Issues and Design Challenges</p>	<p>The majority of these related to the existing building services and the resulting issues arising from 2 key aspects: (i) the inaccuracy of “as built”/current asset data from the landlord and the uncovered lack of previous maintenance on the units revealing condition and performance issues. (ii) the outline design stage M&E services scope of works being under-estimated, leading to the anticipated cost of this work increasing by £300K</p> <p>Pre-acquisition and intrusive surveys were undertaken in the early design period to inform negotiations with the landlord on systems capacities and their capital contribution. However, these failed to sufficiently identify the full scope of issues and be raised as at such a level of uncertainty until nearer the end of Stage 3, by which point the lease transaction had to be completed and we were agreeing the target price for stage 4. Risk items therefore</p>	<p>The importance of pre-acquisition surveys was recognised. The involvement of the PSCP and his design team at the earliest point of the process was also secured (to inform the property transaction negotiations as well as the outline design and business case).</p> <p>With hindsight, the extent of issues experienced could only be explained by varying expectations between the PSCP parties (M&E designers and sub-contractor) on the actual scope depth and their responsibility. In addition, the understanding of the M&E designers of the time pressures, the overall programme and mitigating risks perhaps needed to be improved.</p>
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Planning of the scheme	Use of hubCo.	The use of hubCo (Design and Build Agreement) for smaller value projects should be avoided	Consider implications for using this system
Planning of the scheme	Learning from previous projects	Avoidable faults identified from other projects were not addressed despite advice being given about them by staff who had been involved.	Previous experience should be considered when planning any new project
Business Case Progress	Training	Awareness and understanding of the business case progress with all the stakeholders in particular managers has enabled greater understanding of the necessary processes and timescales that are required for projects.	A simple project flow chart for the Board's projects are small in scale and only require a SBC to date. The use of a standard template for SBC has been implemented and has been reviewed and subsequently agreed to be continued.
Business case progress	Changes	Changes to the brief at later stages of the contract	Allow adequate time to scope the brief with input from appropriate users
Defining Roles	Roles & Responsibilities	Clear communication and point of contact established in projects enabled early problem solving.	PID to be a mandatory requirement for all projects in the Capital Programme

Managing Users Expectations	Public Involvement	Presentations to PPF on the financial year programme enabled public understanding of the budget and prioritisation matrix.	Biannual meeting with PPF
Managing User Expectations	Public Awareness	Estates attendance at PFI provided public awareness of the technical difficulties facing projects.	Biannual meeting with PFI.
Working with Other Agencies	Joint Property usage	Multi Agency property group has been set up to consider property and capital management portfolio.	Multi Agency group to continue.
Communication	Occupation and commissioning	Whilst the project endeavoured to provide as much communication with staff as possible, further weekly / daily updates would have been beneficial especially when the building handover was continually delayed as staff in this project were moving their working location from one hospital to another.	Weekly meetings prior to occupation with all relevant stakeholders
Communication	Communications and team working	The team (i.e. PSCP's and PSC's) worked well together during the course of the project to reach the common objectives and goals, respecting each parties roles and responsibilities. Team members were professional	Team selection in relation to competence, approach and experience is key.

		and generally diligent, enabling a good partnership working approach.	
Communication	Programme Challenges – License to Work and noise disruption to other tenants.	The license to work secured for the works, in agreement with the landlord, did not stipulate out of hours working as a requirement to minimise noise disruption to other tenants. The landlord had not informed his Building Management team of this agreement during the property transaction, who along with the first floor tenant caused disruption to the progress of the works, threatening legal action. The landlord remained elusive. The noise disruption was more excessive than we would have typically expected because of the M&E services scope increase and the associated need to drill a substantial amount of fixings into the concrete slab for the ductwork.	As best practice, we had held information meetings with all other tenants to advise them on our project, the timings and scope of works prior to commencing. We also issued newsletters on progress each month to keep everyone informed and communication channels open. Lesson learned – ensure the landlord has briefed his team (managing agents) and other tenants on the license agreement, and also seek to ensure an express written agreement within the license or equivalent document on noise limits (to then feed into the construction contract). This would then possibly overcome any grey areas of dispute and differing expectations.
Project Personnel	Continuity of project personnel	Although there was no change in key personnel from the Board for this project, the project did have issues with	Continuity of personnel throughout the life of the project will contribute to success wherever this is

		the main contractor who provided a Pre-Construction Manager for the design stages and up to the approval of the NHS Standard Business Case, and a Site Manager for the construction period.	possible although it must be acknowledged that this cannot be guaranteed either within the Board or with external contractors.
Project personnel	Consistency of personnel	Consistent team members is of paramount importance.	This is hard to guarantee at any stage (or for any organisation)
Project personnel	Management of tasks	Do not assume that contractors will carry out the jobs assigned to them	Allow appropriate and adequate time for clerk of works and technical supervisors to check regularly
Project personnel	Implications of working within healthcare facility	The Principal Contractor understands the implications of working in a live hospital environment from the outset – Traffic Management, HAI Scribe, Security, Asbestos, etc.	Ensure an appropriate CDM co-ordinator is involved and more regular monitoring
Project personnel	Best use of resources	Appropriate resources in place to provide detailed Room Data Sheets and Equipment Briefing (for the reasons noted above).	Use experienced personnel with relevant skills and experience to undertake the work involved
Project Processes	Specification development	To ensure that the 'Target Cost' included for all aspects of the works, the Board created an 'Issues Register' to ensure that every drawing, specification, etc. was fully detailed and signed off before committing to a figure that	Wider stakeholder consultation at key gateways throughout the project

		<p>would be used in the FBC. This resulted in very few 'Change Requests' whilst the project was on site and therefore the 'Final Account' being below the agreed 'Target Price'. As the project was delayed significantly particularly in construction stage, issues were escalated to Senior Management / Project Board on a regular basis. The Project Board, chaired by the Director of Finance, met regularly through the construction stage and invited Senior Management from the main contractor to attend also. This was particularly useful and allowed open communication between the NHS and the contractor's senior management team.</p>	
Defect Period	Post Occupancy performance	<p>There were a number of defects in the new facility after the building had been handed over and although, as with all Framework Scotland projects, there was a two year defect period, some issues required immediate attention</p>	<p>It would therefore be beneficial for the wider NHS Property / Estates teams as well as the NHS service to be involved in the project, in this case Catering Services, to be given further information / training with regards reporting /</p>

		i.e. a leaking pipe. This type of issue required NHS estates maintenance team to provide assistance however there was confusion as to who was responsible for rectifying the issue given the defect period.	rectifying defects after the building has been handed over.
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