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The Ohio State University

*Medical Center Master Facilities Plan Report*

Hammes Company

“The shortest distance between idea and reality.”

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Hammes Company has been engaged to review The Ohio State University Medical Center Master Facility plan, focusing on the following areas:

- Medical Center Master Facilities Plan
- Financial Relationship Between the James and All Other Components of the OSUMC

This synopsis provides an overview of the findings and conclusions from this review, with the detail being provided in the attached body of the report.

**Medical Center Master Facilities Plan Review**

Major findings from the review of the Master Facilities plan include:

**Throughput**
- The analysis and assumptions underlying the facility need calculations are comparable to Hammes Company experience with a few, non-material exceptions.
- The greater risk in terms of facility need relates to patient volumes varying from the projections (positively or negatively), which is a function of the pace of Clinical FTE recruitment and productivity.

**Facility Solution**
- The square footage per major room used to quantify facility size is consistent with Hammes Company benchmarks.
- The existing facility solution represents a compromise to accomplish goals of Strategic Plan
  - The solution implies consensus that does not exist.
  - The objections raised by leadership of the Cancer Program are the most obvious, but other Signature Program leaders also feel they made compromises to reach this solution.
  - The objections to the current solution could be addressed by a “re-weighting” of priorities or a more defined Phase II.
  - It is highly unlikely that a solution can be developed that will achieve equal weighting of Signature Programs and be universally accepted.

**Project Cancer**
- Project Cancer has been developed and has evolved since planning was started in 2002.
  - The current Master Facility Plan solution is similar to the Project Cancer plan that was approved by the University Board of Trustees in April 2004.
  - Project Cancer was folded into Medical Center Master Facility Plan in 2005.
- The concern with the Master Facility Plan relates to NCI/Advisory Board comments regarding the separation of faculty in the Master Facility Plan and the impact that might have on translational research. Cancer leadership is concerned that, unless the comments regarding separation are addressed adequately, there will be a negative impact at the time of the next CCC grant review.
- CCC status is likely not endangered by the plan, per se.
  - CCC requirements do not call for consolidated inpatient and outpatient services
  - The OSUCCC has a long and successful history.
  - The proposed facility solution is a substantial improvement over the current situation. Cancer leadership feels the solution does not completely meet the needs for consolidation or capacity.
- The bigger risk relates to the potential impact that the discord among leadership will have on recruiting.
I. **SYNOPSIS**

**Budget and Schedule**
- The project budget is consistent with Hammes Company benchmarks. It should be noted that this conclusion is based on program documentation provided and does not include changes subsequent to February 16, 2007.
- The current status of the analysis is preliminary on some components, but budgetary allowances appear adequate for these components. As noted above, the information provided for Phase I is based on program documentation dated February 16, 2007 and does not include evaluation of any changes subsequent to that date.
- Any “re-weighting” will require time and will reduce the amount available for project components due to increasing escalation.
- The current schedule is aggressive, especially given State requirements on bidding and project delivery.
- A bigger issue is that the project is currently behind schedule. Much of this could be recouped, but that is unlikely in the current environment.

**Risks**
- Major budget risks relate to the following:
  - The Executive Team concept requires hand-offs from Schematic Design to Design Development. Although this is required by State regulations, it creates risks associated with a smooth transition of project assumptions.
  - Multiple prime contracts are also required by State regulation. However, multiple bid packages expose the budget to risks associated with coordination of specifications.
  - The duration of the project exposes the budget to escalation risk.
- Other risks include implementation, schedule and safety. The Medical Center may want to consider increasing contingencies to cover these risks.
- The biggest risk is the lack of consensus regarding the overall project and the resulting impact on the schedule and, potentially, the budget.

**Issues Raised by OSU Board**
- Flood Plain – The design team is aware of this issue and it is being addressed in the planning process.
- Utilities/Infrastructure – Infrastructure needs have been well analyzed and planning is currently underway to address the needs. Allowances have been estimated and appear adequate.
- “Fast Track” schedule – The schedule for the project is aggressive and the project is currently behind schedule. This is a risk.
- Fees – Some professional fees exceed benchmark ranges. However, the overall budget is within range of benchmarks and this area should be monitored as they will likely come down as contracts are signed.
- Break points – There are break points between project components and during pre-construction. However, there are costs associated with the breakpoints.
- University/Medical Center Staff Capability – Although few projects of this magnitude exist, University/Medical Center staff appear qualified to manage the project.
- University/Medical Center Relationship (Hammes-identified issue) – Some lack of consensus exists between University and Medical Center facilities staff. However, they have worked together previously and this should be manageable.

**Funds Flow Analysis**

Major findings from the review of the Funds Flow include:
- The current flow of funds between The James Cancer Hospital and the remainder of the Medical Center is based on very detailed methodology.
  - This methodology allocates costs to different components based on the services provided.
  - There is general buy-in by the affected components.
I. SYNOPSIS

- This methodology appears reasonable and well thought out.
- All parties benefit from the current relationship.
  - The “seller” of services gains from:
    - Volume for services that might otherwise be underutilized (additional contribution to fixed overhead costs),
    - Revenue and volume from “undesignated” patients, and
    - “Payment” for services quicker than would occur from third-party payers.
  - The “purchaser” of services gains from:
    - Not having to make a capital outlay to provide the services,
    - The ability to purchase at cost, and
    - Collecting from insurance companies at standard reimbursement rates.
  - The James Cancer Hospital specifically benefits from the difference between the Medical Center and the CMS expense allocation methodologies, resulting in greater reimbursement.

Conclusion

- The current Master Facility Plan represents a compromise solution to achieve the goals of the Medical Center Strategic Plan.
  - All Signature Programs feel they have made compromises for the current solution.
  - Given the capital budget, Top Ten Comprehensive Cancer Center and Top Quartile Academic Medical Center goals are competing for priority.
- Solutions could be found.
  - One option is a “re-weighting” of the implied priorities in current plan.
  - Alternatively, the solution could be a more fully developed Phase II.
  - It is unlikely that an alternative will result in universal satisfaction with the new plan.
- Any changes or analysis of alternatives will have additional impacts on the project.
  - The schedule is already delayed.
  - Further delays are likely to reduce the project scope or increase the project cost due to escalation.
II. EXECUTIVE SUMMARY

In January 2007, The Ohio State University published a Request for Proposal (RFP) “for a consultant to review the Medical Center Master Facilities Plan…” Hammes Company was engaged to complete a portion of the review, focusing on the following areas:

- Medical Center Master Facilities Plan
- Financial Relationship Between the James and All Other Components of the OSUMC

The scope of work included in the RFP was supplemented through the development of “Key Questions” that identified the issues to be covered by the review. Both the original scope of work from the RFP and these “Key Questions” are included in the body of this report.

Hammes Company’s review of the Master Facilities Plan and the Funds Flow was based upon the substantial documentation provided by the University, the Medical Center and the James Cancer Hospital along with external data sources, including the Solucient ProviderView database and Hammes Company’s internal database of capital cost benchmarks. In addition to the data analysis, Hammes Company completed a number of interviews with key individuals at The Ohio State University and its consultants to gain perspective regarding the project and the data provided.

Oversight of the overall project was provided by William Shkurti, Senior Vice President of Finance for The Ohio State University. Mr. Shkurti provided the day to day direction of the analysis, facilitated access to data and individuals and served as the liaison to the Medical Center Master Facilities Plan Task Force appointed by the Board of Trustees.

Medical Center Master Facilities Plan Review

Project Description

Phase I of the Site and Master Facilities Plan / South Campus Master Plan Implementation includes a series of projects whose goal is to improve the profile of The Ohio State University Medical Center by moving it into the top quartile nationally through a focus on the six identified Signature Programs (Cancer, Critical Care, Heart, Imaging, Neurosciences and Transplantation) including a “top ten” Comprehensive Cancer Center. The current configuration of the “Project” is driven by the following stated Objectives:

- Enhance the identity of the Medical Center through increased visibility and accessibility from Cannon Drive and Route 315.
- Define and maintain a strong external identity for the James Cancer Hospital, Ross Heart Hospital and University Hospital while incorporating a shared platform of diagnostic, treatment, and ancillary and support services.
- Develop pedestrian, vehicular and open space connections between the South Campus and the Main Campus.
- Create an environment of contemporary academic healthcare that merges research, clinical and education missions in a manner that will allow Ohio State University Medical Center to reach national top quartile status among academic medical centers.

The following projects were developed and included in the Phase I Implementation Plan as documented in the Pre Design South Campus Master Plan Implementation, January 5, 2007 document developed by the Executive Team:

- Demolition of the South Cannon Parking Garage
  - Additional surface parking west of Cannon Drive
  - a 600 vehicle parking garage west of Cannon Drive (expandable to 1,000 vehicles)
II. EXECUTIVE SUMMARY

- a 600 vehicle parking garage on the current Spirit of Women’s Park site (expandable to 1,000 vehicles), and
- relocation of the athletic fields and the Spirit of Women’s Park.

- Growth of the Medical Center complex to Cannon Drive
  - A new Cancer Hospital with 224 beds, related diagnostic, treatment, ancillary and support services
  - A new Critical Care bed tower with 132 critical care beds including 36 cancer critical care beds and an ambulatory bone marrow transplant unit
  - A new Diagnostic and Treatment core (with separate cancer-related and general ancillary services) that will serve as the platform for the new Cancer Hospital and Critical Care Tower and also act as a connecting link between existing and new facilities to include
    - invasive and non-invasive diagnostics,
    - operating rooms,
    - imaging, and
    - public entrances and support services

- Major renovations to Rhodes, Doan, Cramblett and the James Cancer Center facilities to upgrade mechanical and electrical systems

- Interior renovations to Rhodes, Doan and James Cancer Center to accommodate backfill requirements

- Modifications and upgrades to infrastructure and roadways

- Three major “enabling” projects including the vertical expansion (60 Beds) of the Ross Heart Hospital, the relocation of the MRI facility and the construction of a new Faculty Office Digestive Disease facility

Combined, the total budget for this first Phase of the Master Facility plan has a capital budget of $780 million. The major components of the work are anticipated to be complete in the Third Quarter of 2011 (Cancer / Clinical component) based on project schedules provided in February 2007.

Throughput Analysis

Initial volume projections were developed by The Ohio State University Finance and Planning group in the fall of 2004 based upon historical experience, integration of approved business/strategic plans, planned recruitment and projected demographic changes (population growth, utilization rates). Key physician stakeholders were included in the process to provide a reality check for the volume conclusions which were utilized by Kurt Salmon Associates (KSA) in the master space plan feasibility study (the review of these volume projections was completed by Deloitte Consulting). Interviews were held with the leadership of each Signature Program where strategic direction, volume assumptions and any additional program drivers, including recent recruiting efforts, were utilized to adjust volume and space requirements. Based on this work, total 2011 space requirements were projected, including:

- 1,207 Beds
  - Projected admissions and patient days were converted to bed need utilizing occupancy percentage targets and percentage distribution of beds by type that are consistent with Hammes Company experience.
  - Generally, the various signature programs felt that the 2014 Bed Need remained accurate. However, Neurosciences estimates the need for an additional 38 Beds and the Cancer Program anticipates achieving 2014 recruitment targets by 2009.
  - This suggests short term risk relative to space constraints if these recruitment projections are met and volume growth occurs more quickly.

- 40-44 Operating Rooms
  - Surgery volumes were developed by OSUMC Finance and Planning and include growth from the Signature Programs
II. EXECUTIVE SUMMARY

- Cancer volume growth was adjusted midway through planning to reflect accelerated recruitment
- Operating room need was projected using target efficiency percentages and surgery durations based on existing operation, both of which are consistent with Hammes Company experience

- **65 Imaging Suites**
  - The original volume projections were updated midway through planning to reflect historic growth and anticipated changes in utilization
  - Utilizing the Hammes Company annual throughput benchmarks yields slightly different needs across all modalities and suggests under planning for CT, MRI, Diagnostic Radiology and Ultrasound while over planning for PET, Interventional Radiology and Nuclear Medicine.

- **208 Exam Rooms**
  - The OSUMC planning department estimated future clinic volumes based upon faculty recruitment, relocation of clinics, and population growth
  - The risk associated with this methodology relates to the successful recruitment of faculty

- **103 Other Diagnostic and Treatment Spaces**
  - Modalities include Endoscopy, Catheterization Lab, EP Lab, Minor Procedure, Radiation Oncology, Chemotherapy and Emergency Department
  - Throughput assumptions for these areas are consistent with Hammes Company experience

- **1,419 Faculty Offices**
  - Faculty office need was based on the projections of faculty recruitment

Planning risk identified in reviewing the KSA space planning model is focused in three principal areas:

- Successful recruitment of projected Clinical FTEs and the resulting impact that will have on patient volumes, particularly relative to Cancer, Heart and Neurosciences.
- Accurate projection of utilization changes, particularly as relates to diagnostic imaging and cardiac surgery
- Accurate projections of throughput, particularly in diagnostic imaging and clinic exam space

**Facility Solution**

Major programmatic need was converted to space need using anticipated room complements and room sizes by department. These were then “grossed-up” to reflect total program square footage. Hammes Company reviewed the overall program and program elements in detail and compared them to other projects of similar nature. In general, the basic concepts and gross-up factors used in the preparation of the program for the Phase I work fall within the basic parameters of the benchmarks. As the project moves from Schematic Design through Design Development, program and scope must be monitored closely to prevent potential budget issues.

In general, the Phase I solution represents a compromise to meet as many of the requirements set forth in the Strategic Plan as possible within the cost parameters established for Phase I implementation. The approval of the Phase I implementation plan implied that there was an acceptance of the plan by all participants, particularly the representatives of the six Signature Programs. However, it is now apparent that the “buy-in” of all parties was not complete. The most obvious concerns with the compromises in the Phase I solution are being raised by the Cancer Program. And to the extent that the issues raised by Cancer impact some of the elements necessary to advance that program to a top ten status, these concerns are significant. However, the other Signature Programs identified concerns with the compromises and these should also be included in any re-evaluation of the Phase I plan. It should be noted that the financial realities of the Project are a limiting factor and that equal weighting of all six Signature Programs is virtually impossible.
II. EXECUTIVE SUMMARY

The compromises could be addressed in Phase II of the implementation if that inclusion is timely with projected growth for any given program. However, there was insufficient detail of Phase II to make a determination or comment on the timing or elements of that phase of work. Without question, the second phase of the implementation process becomes critical in responding to and addressing the current lack of consensus among the stakeholders. Furthermore, this second phase should be developed as soon as possible to minimize potential conflicts or need to relocate work completed as part of Phase I.

Project Cancer

In 2002, leadership of The James and the CCC began discussions about expanding the cancer program, including research and clinical care facilities. A strategic planning process was initiated to further analyze the future direction of the cancer programs at OSU, resulting in “Project Cancer”. The plan called for greater integration between research and clinical programs and resulted in a concept plan with an estimated cost of $350-400 million. This plan, while being further refined, was presented to the University Board of Trustees on April 2, 2004 where it was approved to move forward to more detailed planning. This original plan envisioned construction of two major facilities; 1) a new 14-story inpatient and research tower connected to the existing James; and 2) relocation of outpatient services, additional research space, and a major vivarium to new facilities west of Cannon Drive. The proposed facility solution entailed almost 912,000 square feet of space at a total estimated cost of $370,000,000.

Project Cancer was mentioned in the August 2004 review by the National Cancer Institute, which stated “Facilities will be improved from the last review with new research facilities due to be completed by 2006. However, there is concern regarding the planned separation of the inpatient and outpatient faculties as envisioned by “Project Cancer,” and the effect of this plan on clinical research remains to be seen.” In response to this comment, Project Cancer began to evolve as consolidated solutions were sought.

A master plan for the University Medical Center and the Health Sciences was initiated in 2003, with the goal of supporting achievement of “parity with top-quartile academic medical centers nationwide.” By late 2005, the original Cancer Program Expansion Project was incorporated into the comprehensive Medical Center Facility Master Plan and, in September 2005, the Fiscal Affairs Committee of the Board of Trustees noted that “… the Project Cancer expansion and its associated funding have been incorporated into the Medical Center Facility Master Plan Phase I and II implementation.” Four factors necessitated merging the Project Cancer Plan into the current Master Space Plan:

- Impact on University and Medical Center infrastructure
- Limit on bonding capacity of the University
- Higher cost of building across Cannon Drive (due to flood plain issues and the need for a connection across Cannon Drive)
- Necessity of constructing adjacent clinical space to support patient care

On November 4, 2005, the Board of Trustees approved the Medical Center Facility Master Plan with a project budget of $780 million. Over time, this plan has evolved, with:

- Design changes that moved the hematologic malignancy clinics to the new cancer hospital being made August 2006, in response to patient safety concerns expressed by leadership of the Cancer Program
- In November 2006, design changes were made that moved all of the James Ambulatory Services in Morehouse Plaza back to the James Cancer Hospital, in response to concerns regarding patient safety and physician time

Today, the cancer portion of the Master Space Plan includes a new cancer inpatient hospital, and brings substantially all outpatient services back on campus from the current location in the Morehouse Plaza (excluding some imaging and diagnostic services) with the unstable hematologic malignancy patients seen within the
inpatient hospital. Of significant note is that the radiation oncology services (including intraoperative radiotherapy), currently in The James, will essentially remain where they are, with the new cancer inpatient tower at the west end of the new facilities.

In the fall of 2006, the External Scientific Advisory Board (ESAB) for the OSUCCC expressed significant concern about the changes from the prior Project Cancer facility plan to the overall Medical Center Facility Master Plan. Specifically, the ESAB stated “…There has been a substantial departure from the University’s original commitment to a centralized, unique facility coupled with changes in the scope of the project and placement of facilities that, if pursued, would seriously jeopardize the success of the OSUCCC in achieving its goals of being a top-tier cancer center and a leader in translational research and state-of-the-art cancer patient care.”

It should be noted that the facility plans of both Project Cancer and of the Medical Center Facility Master Plan help to address these separation concerns by having all inpatient, outpatient and research activities and programs contained on the primary Medical Center campus; both proposed facility solutions did not house all cancer services in a single facility (i.e., there was some degree of physical separation of inpatient and outpatient in both plans), and virtually all facility plans or proposals seen to date have some degree of separation of inpatient and outpatient activities. While neither solution appears to be the “perfect” answer, it seems clear that either represents an improvement over the current facility situation, and should be viewed as both an interim compromise solution, as well as a “step in the right direction” toward ultimately achieving the desired state, albeit further in the future.

Concern has been expressed that the changes to the facility plan envisioned by Project Cancer could jeopardize both the NCI designation of “comprehensive” and the PPS Exemption. Based on the general criteria necessary to achieve comprehensive status, the fact that the OSUCCC has been designated as a comprehensive center, uninterrupted, since it first attained that status, and the significant improvements over the current and existing facility layout resulting from the Master Facility Plan, it appears that the Comprehensive status is most likely not in jeopardy. However, that decision is ultimately made by the NCI and it is not known at this time how much importance they will place on facility separation during their next review. It is possible that the bigger threat to retaining Comprehensive status may arise from the apparent dissension among the upper echelons of the leadership of the Medical Center and The James. Absent some reconciliation at the leadership levels, it would appear that future recruiting of top-notch faculty and scientists could be difficult, with a potentially negative effect at both The James and the Medical Center as a whole. As for the potential loss of the PPS Exemption for The James, that entails legal matters that are beyond the scope of the consultants involved in the MFP review. The primary requirement, as we understand it, centers on the separateness and division of governance and leadership of the cancer hospital from that of the Medical Center, with less impact being attributed to the degree to which the cancer program is disbursed throughout the campus. However, separateness of facility identity and operations are important and facility plans should be reviewed with CMS prior to being finalized (a preliminary review has already occurred).

Budget

As part of the analysis of the Project Budget, Hammes Company reviewed the individual budgets for the specific project components as well as the aggregate cost for all of the projects. This type of analysis allows for the ability to review each project individually and make an appropriate assessment relative to the specific project but also allows for a more global analysis that could identify the ability for movement of funding between project elements if that is identified, by Ohio State University, as an acceptable method of balancing the overall project budget to remain within the allocated $780 million. Resulting from this review, two overarching risks were identified, including:

- The Executive Team concept being used presents a unique challenge for the Ohio State University from a contractual perspective. There are several areas where particular attention needs to be paid to responsibilities and roles particularly when projects move from the Schematic Design phase to the Design
Development phase. It is at this point that the responsibility of the Executive Team is diminished and the translation of the information from that team to the individual project teams is critical.

Under the multiple prime contract scenario, there will be multiple bid packages and bid dates. It is our understanding, based on discussions with the project teams, that there will likely be a construction manager or general contractor responsible for each individual project. The use of a “global” construction manager for all projects has been discussed and would likely be a favorable and recommended option to mitigate potential gaps or misunderstandings in scope and/or cost between projects and to make sure that the coordination between projects, particularly where they interface with one another, is addressed appropriately. It appears that all parties are in agreement on the “global” construction manager option which would then need to be formalized in some type of description of responsibilities and approved by the appropriate parties at Ohio State University. In either case, there is going to be an incredible amount of information passing between the parties contracted on each individual project as well as between individual project teams. Managing this information will be critical to success.

In aggregate, approximately $560 million of the remaining project budgets (approximately $706 million which excludes the Ross Heart Hospital Expansion, the Digestive Disease / Faculty Office Building and the MRI Expansion) were subject to comparison budgets developed by Hammes Company. In total the variance was approximately $22 million or 4% of the total cost. A 4% variance at this stage of development would not be considered critical, particularly since the current Ohio State University budgets are in general higher than the comparisons. In conclusion, the aggregate amount of the budgets for the remaining projects appears to be within the expected parameters. While being somewhat conservative they are an adequate reflection of the current status of design and development of information.

A final note related to the total budget is the impact of schedule and escalation. With portions of the work extending four plus years into the future, market conditions need to be monitored carefully to determine if the escalation percentage used for developing the budgets remains adequate. Escalation can go either way and can be very volatile and remains a risk item.

Risk Factors

Two of the most critical items in the design and planning of construction projects are time and cost. A project of this magnitude presents even greater issues by the length of the schedule and the current conditions in construction materials markets. During our review, numerous areas of concern were identified which have been categorized below.

- Implementation Risk – The implementation of the Phase I Master Facility Plan represents a series of projects of a magnitude that is not typical in the construction industry. There are inherent risks associated with the planning, scheduling and delivery of the project that requires a careful coordination of activities and multiple contractors to ensure that numerous project elements tie together to maintain the schedule. A delay on a schedule for a critical element could impact the schedules related to other projects.

Additionally, the magnitude of some of the projects within the Phase I Master Plan is of the size and complexity where there might be a limited number of prime contractors that can complete the work. Timing of projects to market is critical in regard to the availability of contractors and labor. Other large projects in the market (Children’s) can impact the number and type of firms available as well as the bidding environment.

Management of proposed changes is also a critical element in the construction process. Inevitably, there will be a need for changes that are requested (owner option) or necessitated (existing/unforeseen conditions). With multiple projects running concurrently and multiple ownership entities as stakeholders, it is likely that there will be competing interests for additional funding.
Finally, any construction project presents issues relative to safety on the site. With multiple projects on multiple sites with multiple contractors, there is the potential for differing levels of safety and security on the sites, requiring the basic rules for safety and security (including protection of the public) are maintained across the entire spectrum of projects.

- **Escalation Risk** – The volatility in construction materials costs has been well documented and difficult to predict over the past several years and there does not appear to be any immediate sign of a return to the stability of the recent past. In this case, a 6% escalation factor is being used as an average for the duration of the project. This is based on what many of the research firms feel will be a stabilization of the materials costs in the next 12 to 24 months, but it is not guaranteed and is susceptible to change based on many external factors. Again, the magnitude of the Phase I projects comes into play as some of them will have schedules that extend 2 to 3 years.

- **Allowances and Contingencies** – As the design of the various projects included in the Phase I Master Plan nears completion of Schematic Design, the level of detail for some of the projects is not complete enough to allow for more detailed pricing other than the use of “rule of thumb” or square foot database type estimating. Where there is a lack of definition relative to scope or design intent, allowances are used to create place-holders for specific items. While it is not unusual to have allowances in budgets, particularly at this stage of development, the specifics of those allowances need to be detailed so that all parties are aware of what they cover and the basis of the estimate. If there is a disconnect between design and construction relative to what the allowance is intended to cover, there will be a further disconnect as the design is completed. The result is an allowance that is not adequate for the work as finally designed which will then require use of contingency dollars to absorb the impact of that adjustment.

As noted elsewhere in this Report, one of the areas of concern is the Infrastructure / Roadways project which has a substantial number of allowances. The scope of that work needs additional and timely development so the scope of work covered by these allowances can be further defined and the allowance can be adjusted appropriately.

Contingencies are a method of risk mitigation that allows the Owner to maintain and control funds for unforeseen issues that may arise during the design and construction of the project. In many cases contingencies are established at a higher percentage early in the development of project design. As the design becomes better defined and estimates can be more accurate, the need for some of the contingencies is mitigated to a degree. The level of contingency an Owner will carry for a project is dependent on the amount of risk they are willing to take and the type of contracts that are intended to be put in place with the design and construction teams. The contingencies need to be managed and controlled so that they are used appropriately and are not used for scope or other changes without review and input from the appropriate individuals at the university responsible for budgets and decisions of that nature.

The current budgets include $63 million (13.2%) in contingency dollars and $46 million (9.62%) in escalation allowances. With approximately $108 million in project funds unallocated (contingencies and escalation), management of these funds is critical to understanding the current status of the project and an invaluable asset in decision making for the university.

- **Project Team** – A final area of risk that should be mentioned is the need to assemble a qualified and manageable project team and a project management structure that can achieve success. Some concern has been expressed by various parties about how the Executive Team is currently configured and the roles and level of involvement of several parties. Without observing the interactions and processes over an extended period of time it is difficult to assess where there might be gaps or breakdowns in the process. Nonetheless, it is important that any disagreements be identified and resolved prior to moving forward with the execution of the Phase I Master Plan. It is not the intent of this Report to identify a process or to overstate the issues that may exist. At this time all parties are engaged in ongoing discussions to identify a process that will meet everyone’s needs and concerns and that situation may indeed be rectified prior to the issuance of a final Report.
II. EXECUTIVE SUMMARY

All construction projects involve a certain degree of risk outside those associated with the strategic goals and planning assumptions for that project. Identifying, understanding and quantifying those risks early in the process allows the Owner to mitigate them as necessary.

It should be noted that for the purpose of this analysis, the issue of achieving consensus among the various parties involved from the University perspective is not identified as a risk as part of the budget evaluation. There are obvious and serious issues related to the consensus concern that impact schedule and, therefore, cost. Achieving this consensus among the stakeholders in the “ownership” of the project will be critical to success from a schedule and, ultimately, a budget perspective.

Schedule

In reviewing the schedules, each project was viewed separately. Where there were critical tie-ins to other projects, those links were checked to make sure they were valid. The review, as noted, focused on durations of specific events or phases to make sure they were adequate or within benchmarks for similar projects. Subsequently, the schedules were reviewed to determine the current status of each project relative to the schedule.

The two areas that appear to differ significantly from benchmarks would be the Design Development phase for the Cancer / Clinical project (37 days longer than the benchmark) and the 10th Avenue Parking Garage (51 days longer than the benchmark). In the case of the Cancer / Clinical project this may be a moot point as the “fast track” process typically short circuits the Design Development completion. However, as the schedules are designed and there is a specific date and time frame for approval of the Design Development documents (by the University), there is a question relative to whether or not the University can or will allow commencement of Construction Documents prior to completion and approval of the Design Development documents.

The method in which these projects are organized, using the Executive Team through Schematic Design, also presents an issue from a scheduling perspective. At some point during the Schematic Design process the architect for the balance of the project needs to be selected. Ideally, that selection would dovetail with the completion and approval of the Schematic Design documents. In that way, there could be a fairly smooth transition into the Design Development phase and an ability to maintain the schedule for that phase. However, based on conversations with the University FOD group and some additional research with the State of Ohio concerning the mandated bidding process, the process will likely take longer than that allowed in the schedule.

Regarding the current status against schedule, there are four projects for which the architect selection process should actually be complete and the architect under contract. In all four of these cases, the process has not been initiated by Board of Trustee approval. That being the case, the Cancer / Clinical Expansion project, Infrastructure / Roadways and the Rhodes, Doan, James MEP / Life Safety Upgrades are a minimum of 126 days behind schedule. This is based on an assumption that Board of Trustee approval to advertise for bids would be obtained by July 7, 2007. It is likely that the date may be later than that which would increase the delay on a day for day basis.

All of the above statements do not take into consideration any impacts of the consensus related issues referenced in this Report (as it relates to the Cancer program). A final determination relative to Cancer (consensus on the current plan or modification to the current plan) will result in schedule modifications that cannot be identified at this time.

A delay during the design process is usually more “forgiving” in that it can allow for the ability to make up the time through more aggressive scheduling for the remainder of the design process. The cost implication of these types of delays, before the commencement of construction, is in the risk associated with the timing of the buyout of the work and the potential escalation related to extending the completion date. The issue of arriving at a
consensus is of the same nature but is compounded further by the potential for some redesign or reprogramming of the project. In all cases, the impact of any delays on the strategic objectives of the project and the revenue streams required for success can only be quantified by those generating the business plan calculations.

**Issues Raised by OSU Board**

As part of this assignment Hammes Company was also asked to review several key issues raised by the Board of Trustees related to the execution of the Master Facilities Plan, including:

- **Flood Plain** – Several of the sites for proposed structures related to the Master Facilities Plan are located in an existing flood plain. In response to the issue, the University has taken proactive steps to make certain that major service equipment is located out of the flood plain itself by instituting polices requiring that equipment be a minimum elevation above flood plain. There does, however, seem to be some confusion as to the exact requirement and the design team, when questioned, was in the process of validating the requirements and making any necessary adjustments to their documents.

  It should also be noted that the situation on the east side of Cannon Drive is significantly different than the situation on the west side of Cannon Drive. It is likely that the construction on the east side of Cannon Drive will be protected through prudent design and in meeting the requirements established by the University. The entire area west of Cannon Drive is well into the flood plain. It borders the Olentangy River on the west side of the site and is partially protected by a berm. However, any construction on this side of Cannon Drive will require substantial additional cost to mitigate potential water issues in the construction as well as to protect construction and critical equipment.

  In discussions with the Executive Team, FOD and the Medical Center Facilities group, there is a high level of awareness of the flood plain situation and a focus on making certain these issues are addressed in the design. A prudent solution is one that will cover the risks in a cost effective manner while understanding that a 100% solution is not necessarily an appropriate answer.

- **Utilities / Infrastructure** – The situation concerning utilities and infrastructure appears to have two major points of concern. The first deals with capacity and the ability of the University infrastructure system to meet the needs of the new project. The second deals with the level of information currently available and the costs associated with the preliminary design.

  It appears that a good deal of time has been devoted to understanding the requirements related to utilities required for the implementation of the Master Facilities Plan including preliminary designs to understand capacity requirements and design those services. A preliminary plan to place a utility plant west of Cannon Drive was tabled and alternatives have been investigated and preliminary designs have been developed for the purpose of making certain that utilities can be accessed and a plan that meets the needs of the Medical Center and University can be developed and executed.

  The University Facilities Operations and Development (FOD) group expressed concern that the cost of this work has not adequately been addressed and that the overall picture (campus, not just Medical Center) has not been developed to the level of detail necessary. They expressed concerns relative to the current lack of detail in regard to the overall infrastructure impacts (equally above grade as below) and the fact that the majority of the estimates that were available at the time were based mostly on allowances. A more highly developed plan is in the process of being completed with FOD input and should be available in the near future.

  Another key item is to make certain that adequate system capacity and redundancies exist to provide for the ongoing operation of the campus and Medical Center. If the relocation of utilities servicing the Medical Center or other critical systems on campus is required, alternative means for providing back-up capabilities need to be understood and confirmed prior to proceeding with work.

  FOD feels strongly that this needs additional design, pricing and scheduling to be validated before moving forward with these projects. We would be in agreement with this need and recommend that
additional time be spent to clarify and understand the scope and costs with fewer assumptions and allowances.

- “Fast Track” Schedule – The schedule(s) for these projects are represented as “fast track” from the standpoint of preparing and issuing early bid packages for specific portions of the project to allow for the construction to get an early start while the balance of the construction documents are being completed. Under more typical contracting methodologies this is a fairly typical tool used to push project schedules and completion dates. In this particular situation, with multiple prime contracts this becomes a little more difficult and, to a certain degree, cumbersome.

“Fast track” scheduling requires a significant degree of coordination and a certain degree of risk. Under the current plan and process, the assumption is that all of these pieces will come together and that the budgets established are appropriate and adequate. This includes the assumption that contingency amounts are sufficient to deal with any “risk” related issues without depleting them to the point that they are insufficient for the completion of the projects. Given that this type of contracting methodology places that risk with the Owner, the 13.2% combined contingency is viewed as marginal at this time and should be held through the completion of Design Development.

- Architect, CM and Other Fees – In reviewing the budgets, several items were noted in this regard:
  - The Master Facilities Plan implementation (Phase I) is somewhat unique in that it has a significant total cost ($780 million) but is made up of several different and diverse projects, most of which are of a more typical size and complexity (parking structures, hospital, infrastructure). For that reason, the Executive Team approach is one that makes sense to ensure coordination and continuity in the process.
  - The Executive Team fees average approximately 3.2% across the board for all projects, which is reasonable as it includes both the design and construction management aspects.
  - It should also be noted that because the Executive Team is taking this work through Schematic Design, the design fees allowed for the balance of the work should be lower than normally expected for a traditional delivery model to compensate for the fact that the project specific teams will not have to do the Schematic Design.
  - The Construction Manager fee allowed in the budgets ranges from 4.5% to 6.8%. Our experience on projects where the construction manager is not self-performing any work is that the fees range from 1.75% to 3.5% percent. The fees where the construction manager is self-performing some of the work could be lower.
  - The design fee allowances for the individual projects range from 5.3% (parking related projects) to 8.5% to 9% (other projects). Looking at comparable benchmarks for similar projects (looking at them as individual projects) the fee ranges are higher than the benchmarks. It should be noted that the Executive Team is going to complete the development through Schematic Design. This is probably worth 15% of the total A/E fee on a project. That is what drives the comment that the balance of the fees in the 8.5% to 9% range would be higher than similar projects. In many markets there is a premium for State sponsored projects but it is our opinion that the difference and the level of work (Schematic Design) being completed by the Executive Architect the balance of the fees in the 8.5% to 9% range is higher than what would be anticipated. It should be noted that FOD had indicated that the fees fall within the ranges typical for work on the campus although the Executive Architect system is typically not employed except on larger projects.

- Break Points – Another Task Force question centered on whether or not there were any “natural break points or check points where adjustments can be made after construction has started.” In general, break points can create issues related to the loss of key team members to other projects, the loss of design intent...
II. EXECUTIVE SUMMARY

continuity with the team and users, a loss of momentum with the public approval process, increased general conditions costs, and potential escalation.

In the case of the Master Facilities Plan implementation, a potential “break point” exists at the completion of Schematic Design where the scope and budget for each of the individual projects can be reviewed and updated. Another possible break point is at the completion of Design Development. There is also some flexibility in the overall Implementation Plan in that this is a series of projects rather than one large project. They have different start and completion dates and although they are inter-related, there is a possibility of inserting decision dates into the schedule which would in essence provide “break points” in the evaluation of the overall Plan prior to proceeding with a specific “next stage” project.

University / Medical Center Staff Capabilities – Another concern raised by the Board Task Force was whether or not the University and Medical Center had staff of sufficient experience and background to manage the projects on the part of the University. In general, the individuals that Hammes Company interviewed represented a cross section of the professionals that would be involved in project execution and all of them comported themselves professionally and appeared to have above average skills. Based on the brief amount of time spent with these individuals and the information provided, the University and Medical Center staff appear to be qualified and organized to effectively perform their functions for these projects.

University / Medical Center Relationship (Facilities) – During the course of interviewing the various stakeholders and project participants, Hammes Company identified one other potential issue that relates somewhat to the consensus issues raised elsewhere in this Report. In this case the “consensus” at issue is between the University Facilities Operations and Development (FOD) group and the Medical Center Facilities Department. Information provided subsequent to the interviews with these Departments indicate that significant progress has been made toward identifying an organization and process that will provide an agreed upon working platform for their cooperation.

Conclusion

In conclusion, the analysis and documentation supporting the current Medical Center Master Facilities Plan is generally consistent with what would be expected at this point in the implementation of a major capital project.

- The throughput analysis/assumptions are comparable to Hammes Company experience. While there are some areas where they vary from benchmarks, these variances should not generate significant premiums/savings in total square footage. The greater risk in this area relates to the potential impact that volume projections will be greater or less than the original throughput analysis was based upon. To some degree, this is based upon the speed with which the projected Clinical FTEs are recruited and the time required for them to reach anticipated productivity levels.

- The space planned for the major programmatic elements and the project budget are consistent with Hammes Company benchmarks. While some elements are still at a preliminary stage in terms of design, the allowances appear adequate.

- There are some unique aspects to the delivery of this project that relate primarily to its size and State of Ohio regulations. However, it appears that the Medical Center and the University have a project organizational structure and the internal people necessary to manage the complexities. Consensus among the Medical Center and University staff has not been formalized at this time, but they have a history of working together in the past and should be able to do so on this Project.

- Additionally, a project of this size carries a number of risk factors including implementation, schedule, safety, and escalation risk. Currently, the project budget might be a little light in contingencies, but not to a concerning level.
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A more substantial issue relates to the current status of the project schedule. The Master Facility Plan assumed a “fast track” schedule that depended upon the careful coordination of the implementation process. While possible to meet when it (the schedule) was initially developed, the project is currently more than 130 days behind that initial schedule. Much of this delay could be recouped through an efficient design process, but a lack of consensus on the overall direction of the project, calls into question whether that catch up can be achieved. In addition, given the current review process, an entirely new schedule should be developed for all project components not currently under construction once the University completes this review process and projects are once again moving forward. This delay in the schedule risks the Project incurring additional escalation costs which will impact the scope and program that can be achieved for the same budget. Additionally, the delay in the schedule risks achieving the strategic objectives and revenue growth included in the business plan.

The most significant issue with the Master Facility Plan relates to the lack of consensus regarding the scope of Phase I. The current plan represents a series of compromises that attempts to balance the requirements to achieve top-ten status in the Cancer Program and top quartile status for the Medical Center. While not in conflict in theory, these two goals are competing for scarce capital dollars during Phase I. The Cancer Program feels that the current plan impairs their ability to achieve top ten status, especially in relationship to the latest version of Project Cancer. Given limited capital resources, reallocation of signature program funding may be less than optimal from a programmatic point of view. However, there may be more flexibility in what can be accomplished in the implementation of the Master Facility Plan by taking a longer term perspective (including, potentially, a more defined Phase II).

All of the compromises could be addressed in a Phase II and/or through the re-weighting of the priorities implied in the current Phase I. However, it should be noted that resolving these conflicts will cost time, which ultimately impacts the scope that can be achieved (due to escalation). Additionally, it should be noted that some project components will necessarily occur in a Phase II, with the result that some key constituents will likely be dissatisfied with a revised facility solution.

Funds Flow Analysis

The primary flow of funds between the James and the other components of the Health System include:

- A “pass-through” allocation that the Health System receives from the University – The pass through allocation from the University is a charge to every non-General Funds unit for administrative support costs such as central payroll, liability insurance, central accounting and police protection. The amount of the expense allocated to each entity within the Health System is determined by the Health system on a reasonable allocation methodology that is not in question.

- An “overhead” allocation from Shared Services – This expense item represents each entity’s share of overall Health System overhead costs that are not otherwise directly attributable to any specific entity of the System. The overhead allocation is based on an extremely detailed, regularly reviewed allocation methodology, that is generally based on usage and which has been agreed to by the impacted entities.

- A “purchased services” allocation from University Hospital (primarily) – This allocation represents the costs of providing patient care services to the patients of other entities. These services include patient care areas where the other entity either does not provide the service or is unable to provide them due to volume or other constraints. These expenses are calculated based on actual usage by each entity of each service with cost being determined by a detailed cost accounting methodology that includes both direct and indirect costs, developed over many years and agreed upon by all Health System entities.

It is important to note that the detailed cost accounting methodology used in this process does not take into account the initial capital costs of acquiring equipment, technology or space related to, and necessary for the provision of the services involved. In general, depreciation expense is included in the calculation.
of unit-costs, but it is our understanding that the implicit cost of capital for outlays not funded by debt (i.e., purchases from cash reserves or operating income) are not included in the allocation.

It has been stated that the “owner” of a given piece of equipment or technology may be in an advantageous position with respect to the ability to bill for “undesignated” patients, thus helping to offset overhead expenses not included in the inter-hospital allocations, such as the implicit cost of capital. A further benefit that accrues to the “owner” is that, because purchased services are “paid for” via inter-company transactions, there is virtually a guarantee of timely payment for those services that are purchased by related entities, as opposed to the uncertainty of payment and the timing thereof when patients or third party insurers are billed for services.

Furthermore, the entities receiving these services in turn bill their patients for payment of those services and count those revenues on their own individual income statements. Through February 2007, The James was able to bill for more than $267 million in revenue (estimated collections of $105 million) versus $63 million in cost for these patient services.

Additionally, The James has the added benefit of receiving reimbursement from Medicare and Medicaid (CMS) for these services under the PPS-Exempt methodology. The CMS allocates costs differently than the Health System methodology, which has historically resulted in higher reimbursement to The James.

- A transfer from the James to the College of Medicine for faculty support and to the CCC for program support – It appears that the vast majority of these support dollars are earmarked for cancer-related items.

The James has been a financially successful operation for a number of years. This is due to many factors, but perhaps the two most important are:

- the PPS Exempt status which provides for more favorable reimbursement from government payors, and
- the ability to purchase services from the OSU Health System at actual costs, which are significantly less than what The James would have to pay for similar services in an open market, or if The James needed to provide those services on its own.

When compared to peer institutions and across major revenue and expense categories The James falls solidly within the range of the peer group. Excluding M.D. Anderson and Memorial Sloan Kettering, The James demonstrates greater than average admissions and revenue with a total expense and operating profit margin that approximates the average. Across FTE and Salary expense categories, The James demonstrates efficiency at the superior end of the peer range. These metrics place The James solidly within the range of the peer group or, as in the case of FTE and salary expense categories, performing exceptionally well in comparison. This corroborates the benefit that The James receives from the current allocation process.

In conclusion, it seems clear that the funds flow relationship between The James and the OSUHS is mutually beneficial, with the purchaser of services getting what amounts to a discount, the seller of services able to boost utilization, a member of the overall System receiving greater revenues than some of its peers, and other departments receiving additional dollars for faculty, research and other support, all while boosting the overall reputation and prestige of The Ohio State University. While the legal environment regarding the PPS exemption may ultimately lead to a change in governance structure, steps should be taken to insure the clear financial benefits of shared services and other synergies between the James and the Medical Center are retained.
RFP

In January 2007, The Ohio State University published a Request for Proposal (RFP) “for a consultant to review the Medical Center Master Facilities Plan…” Background for the interested Consultants included the following description.

In the context of overall University priorities and the Medical Center's Strategic Plan and Financial Plan, the Ohio State University Administration and Board of Trustees desire to engage a consultant to review the OSU Medical Center (OSUMC) Master Facilities Plan. The proposed $780 million Medical Center expansion is the largest construction project in the history of the University. In order to ensure that the project plans are aligned with the physical, programmatic, and financial goals of the Medical Center and those of the University, the University Administration and the Board of Trustees have decided to engage an external consultant or consultants to review and validate the overall project scope, assumptions, timelines and deliverables. This added step will provide the assurance that the Medical Center will be able to continue to move forward in a way that is beneficial to the University, the community and the State of Ohio.

The specific Scope of Work Parameters outlined in the RFP is as follows.

The scope of the project includes review of existing documentation and interviews with critical University and Medical Center personnel. For purposes of this request, “review and validate” means to examine existing plans and supporting materials to ensure they are complete, strategically consistent, and fiscally sound and are achievable within the timeframes indicated and that risks are appropriately identified and managed.

Strategic Context

- Review and validate the OSUMC Strategic Plan in relationship to the University plans and goals
- Review and validate the planning and support for the six signature programs (cancer, critical care, heart, imaging, neuroscience, and transplant).

Medical Center Master Facilities Plan

- Review and validate the overall strategy and planning principles driving the Master Facilities Plan, including the relation to the six signature programs
- Review and validate individual and total project budgets of Phase I, including comparisons with appropriate benchmarks
- Review and validate individual and total project schedules for Phase I, including project sequencing for feasibility of scheduling, coordination and attainability based on a fully functioning Medical center during construction
- Review and validate risk management of all facility and financial contingencies, including loss of revenue projections if the project is not brought on line as proposed in the master plan schedule and opportunities for mid-course adjustments
- Review and validate preliminary plans for Phase II
III. HAMMES COMPANY CHARGE

Five-Year Financial Plan

- Review and validate the five-year financial plan, including:
  - Revenue and cost assumptions
  - Targets for operating margin, cash on hand and debt coverage
  - How the OSUMC plan fits into the University’s long range financial plan

- Review and validate the financial performance of the OSUMC compared to other public and private academic medical centers based on selected indicators (e.g., margin, liquidity, debt) and external financial ratings (e.g., Moody’s S&P).

- Review and validate the management options related to the Master Facilities Plan and the five-year financial plan

Financial Relationship Between the James and All Other Components of the OSUMC

- Review and validate the funds flow between the James, the OSU CCC, the OSUMC, and the University

- Review and validate the financial benefit of the Medicare exemption for the James and the rest of the OSUMC

- Review and validate costs and benefits of the Master Facilities Plan (Phase I) to the James and the rest of the OSUMC, including James Care and the ambulatory care plans.

Related Studies

The consultant is also expected to coordinate their review with other ongoing reviews currently underway in other University entities such as Business and Finance and Legal Affairs.

Bidders must disclose any conflict of interest that might exist between current consulting engagements with the University and this project.

Deliverables

- A preliminary report is expected no later than 30 days after the start of this engagement

- A final report is expected not later than 60 days after the start of this engagement

- This review will be coordinated by the Senior Vice President for Business and Finance and the Chief Legal Counsel in consultation with the Board of Trustees, President of the University, the CEO of the Medical Center, and other interested stakeholders as appropriate

Qualifications

The proposed consultant(s) should include financial analysts, business analysts and construction experts with industry experience. Experience with medical center developments of the type and size being implemented here is preferred. Resumes of each team member will be provided for consideration. The core team members will have an established record of previous work. Client references must be provided.
Proposal Response
In February 2007, Hammes Company submitted a proposal to complete the entire Scope of Work outlined in the RFP. During the subsequent consultant selection process, it was determined by The Ohio State University to complete a “joint” award to Hammes Company and Deloitte Consulting. As part of this joint award, Hammes Company was tasked with completing the following two components of the Scope of Work:

- Medical Center Master Facilities Plan
- Financial Relationship Between the James and All Other Components of the OSUMC

Key Questions
Subsequent to the awarding of the project, a number of “Key Questions” were finalized that provided additional clarity to the overall scope of the project. These key questions were not intended to supersede the Scope of Work included in the RFP but rather to clarify the key issues needing clarification during the review. These key questions are listed below.

Regarding the Strategic Plan:

- What is the basis for having six signature programs and is this number appropriate?
- Has the strategic planning process been inclusive of all key medical center and business unit leaders/personnel?

Regarding the Five-Year Financial Plan:

- How has the health system performed financially over the last five years and how does that compare to appropriate benchmark institutions?
- How do the financial ratios (margin, cash, debt service coverage) compare with the appropriate benchmarks? How can we be sure we're comparing apples to apples?
- Are the reserves on hand and management contingencies sufficient to address the risks inherent in a project of this size?
- What is the impact on the Financial Plan if the project(s) are delayed or stopped?
- What has been the University and Medical Center's track record on other large construction projects?

Regarding the Master Facilities Plan:

- How does the "fast track" timetable compare to appropriate benchmarks? Are the related risks addressed appropriately?
- Are the architect, CM and other fees appropriate to a project of this nature?
- Do the University and the Medical Center have sufficient staff of appropriate backgrounds on hand to manage this project?
- Are there any natural break points or check points where adjustments can be made after construction has started?
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- Have infrastructure needs (utilities, access, etc.) been appropriately addressed?
- Have the risks of building in a flood plain been appropriately addressed?

Regarding the Relationship with the James:

- Does the current Master Facilities Plan differ from the original Project Cancer Plan and if so how? What is the potential impact on the Cancer Program Strategic Plan?
- What funds are moving from the Health System to the James/CCC and from the James/CCC to the Health System?
- What are the direct and indirect benefits to the James from the Master Facilities Plan?
- What are the pros and cons of moving the inpatient and additional outpatient cancer program closer together in Phase I of the Master Facilities Plan?

Process

Hammes Company’s review of the Master Facilities Plan and the Funds Flow was based upon the substantial documentation provided by the University, the Medical Center and the James Cancer Hospital. In addition to this analysis on internal data sources, Hammes Company completed an analysis utilizing external data sources, including the Solucient ProviderView database and Hammes Company’s internal database of capital cost benchmarks. The main purpose of this external data analysis was to benchmark and test the validity of the information provided as part of the review.

The internal documents provided by The Ohio State University and its consultants include the following:

Mission, Vision, and Values
- Strategic Planning Process
- Leadership Training/Development
- Wallstreet Journal Visioning Exercise
- Top tier gap analysis 2003
- Top tier value proposition
- Vision Statement
- Consensor technology, mission, vision, values
- Strategic Plan overview, 2006 version

External Market Analysis: National / Regional / Local And Internal Analysis
- Academic Medical Center Analysis – January 2005
- Academic Medical Center Analysis – Updated March 2007
- Zip Code ranking
- County analysis and ranking
- Minutes from last seven months of competitive intelligence meetings (July 2006 – Present)
- Franklin County Market Reports - FY 07 YTD, Year-end FY 2006 and FY 2005
Program Prioritization
- Process Description and Criteria Weighting Survey
- Prioritization Surveys
- Clinical Services Prioritization Results
- Research Program Prioritization Results
- Education Program Prioritization Results
- Prioritization Results Summary
- Signature Program Definitions

Business Unit Strategic Plans
- University Hospital (UH) prioritization – 2004
- UH Strategic Plan summary – November 2004
- UH Critical Care Plan summary – May 2004
- UH Digestive Health Plan summary – November 2004
- UH General and Reconstructive Surgery Plan summary – November 2004
- UH Imaging Plan summary – March 2004
- UH Transplant Plan summary – April 2004
- University Hospital East Plan summary – April 2004
- OSU Harding Plan summary – June 2005
- OSU Rehabilitation Plan – March 2007
- OSU Ross Heart Hospital Planning

Signature Program Planning – Volume 1 and 2
- Leadership Appointments
- Strategic Planning Retreat – Aug 2005
- Strategic Planning Retreat – January 2006
- Strategic Planning Retreat – May 2006
- Strategic Planning Retreat – February 2007
- Cancer Signature Program: Strategic Plan, FY 07 priorities and approval letter, FY 07 scorecards, FY 07 contingency responses, FY 08 priorities
- Critical Care Signature Program: Strategic Plan, FY 07 priorities and approval letter, FY 07 scorecards, FY 07 contingency responses, FY 08 priorities
- Heart Signature Program: Strategic Plan, FY 07 priorities and approval letter, FY 07 scorecards, FY 07 contingency responses, FY 08 priorities
- Imaging Signature Program: Strategic Plan, FY 07 priorities and approval letter, FY 07 scorecards, FY 07 contingency responses, FY 08 priorities
- Neurosciences Signature Program: Strategic Plan, FY 07 priorities and approval letter, FY 07 scorecards, FY 07 contingency responses, FY 08 priorities
- Transplant Signature Program: Strategic Plan, FY 07 priorities and approval letter, FY 07 scorecards, FY 07 contingency responses, FY 08 priorities

Technology Plan
- IT Planning Committee
- Stakeholder Interviews
- IT Strategic Planning Committee Sessions
- IT Strategic Planning Committee Report
- Prioritization Tool
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− Medical Center Executive Presentation
− Final IT Strategic Plan
− Clinical Technology Assessment
− Miscellaneous

Strategic Plan for People
− Steering Committee Materials
− Steering Committee Meetings
− Pillar 1: Build a Talent Base
− Pillar 2: Foster Excellence
− Pillar 3: Develop Leaders
− Medical Center Executive Presentation – February 2007
− Draft Strategic Plan
− Miscellaneous

Ambulatory Care Plan
− Ambulatory Care Concept Paper – July 2005
− Ambulatory Plan Summary – Current state and future plans – August 2006
− Ambulatory Plan Update Presentation – March 2007
− Dublin Ambulatory Plan
− Gahanna Ambulatory Plan
− 23 North Ambulatory Plan
− Primary Care Planning – Current sites, McKinsey Analysis (February 2003), PCN Restructuring Plan (January 2006), PCN Restructuring Plan Update (March 2007)
− OSU Sports Medicine Strategic Plan and Feasibility Study

Outreach Plan
− Outreach Assessment/Plan Executive Summary – May 2005
− Outreach Assessment/Plan Full Report – May 2005
− Outreach County Prioritization
− Outreach Plan Update Presentation – February 2007

Performance Management and Scorecards
− Key Result Areas (KRAs)
− Health System Scorecard
− Research Scorecard
− Education Scorecard

Financial Plan
− Board of Trustees MCAC approved Financial Ratio Targets
− Five Year Financial Forecast and Plan
− Kauffmann Hall financial and capital plan development
− Previous 5 year’s audited Financial Statements
− Cost allocation
− Medicare Cost Reports
− Rating Agency (S&P, Moodys, Fitch) presentation/review
− S&P report (when available)
− James PPS Exemption material
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- FY07 operating budget, capital budget, YTD financials
- Development Plan
- Development Benchmarking

**Biomedical Research Tower**
- POR
- Sanfilippo Recruitment Letter
- Capital Budget Request
- GPR/MSP affirmation of research needs
- Project Cancer visioning statement
- Research readiness study

**Ross Heart Hospital/Ross Expansion**
- Arista Study
- Heart Feasibility Study
- Siting Study

**Doan Digestive Disease Tower/Office Tower**
- McClain Recruitment initiative
- Grever site visits
- Master Space Plan Office Evaluation
- Physician Needs analysis and benchmarking
- Project Cancer recruitment plan

**Project Cancer**
- NBBJ/Oncology Solutions Feasibility Study/Plan
- SOM Visioning/Pre-design program

**Master Space Plan**
- Tsoi Kobus Selection Review
- University Master Plan and South Campus Master Plan
- Executive Summary
- Final Plan (hard copy and disc)
- Models
- Health Sciences College Report
- Process Deliverables
- Board Resolution

**Master Plan Implementation**
- Trirega Documentation
- Board Resolution
- Executive Planning Team Selection
- Sprint Start
- Blackwell Cost Retreat
- Parking Infrastructure Plans
- Program of Requirements
- Conceptual Cost Model
In addition to the data analysis, Hammes Company completed a number of interviews with key individuals at The Ohio State University and its consultants. The purpose of these interviews was to gain perspective regarding the project and the data provided. Additionally, these interviews provided context regarding the process to date and the key issues facing the different constituents. Individuals interviewed include the following:

- Eric Kunz, Associate Vice President for Health Sciences, Facilities and Materiel Management
- Herb Smaltz, PhD, Associate Vice President and Chief Information Officer
- David E. Schuller, M.D., Senior Executive Director, Arthur G. James Cancer Hospital and Richard J. Solove Research Institute AND Deputy Director, Comprehensive Cancer Center
- Larry Anstine, Executive Director, The Ohio State University Hospital AND Executive Director, Richard M. Ross Heart Hospital
- Fred Sanfilippo, MD, PhD, Senior Vice President and Executive Dean for Health Sciences AND CEO, OSU Medical Center
- Dan Like, Administrative Director, Planning and Business Development
- Chip Souba, MD, ScD, Dean, College of Medicine
- John Stone, Chief Financial Officer, OSUMC
- Dennis Smith, Executive Director, Arthur G. James Cancer Hospital and Richard J. Solove Research Institute
- Gail Marsh, Senior Associate Vice President and Chief Strategy Officer
- Peter Geier, Vice President for Health Services and CEO, OSU Health System
- Clay Marsh, M.D., Professor & Director, Pulmonary, Allergy, Critical Care, & Sleep Medicine AND Director, Center for Critical Care AND Vice Chairman for Research, Department of Internal Medicine AND Deputy Director, Respiratory and Critical Care Research
- Ronald Ferguson, M.D., PhD, Executive Director, Comprehensive Transplant Center AND Professor of Surgery
- Nino Chiocca, M.D., PhD, Dardinger Family Professor of Neurosurgical Oncology AND Chairman, Department of Neurosurgery AND Director, Neurosurgical Services
- Michael Caligiuri, M.D., J.L. Marakas Nationwide Ins. Chair in Cancer Research AND Professor and Director, Comprehensive Cancer Center & Division of Hematology & Oncology
- Michael Knopp, M.D., PhD, Chairman and Professor of Radiology Novartis Chair of Imaging Research
- William Abraham, M.D., FACP, FACC, FCGC, FAHA, Professor of Internal Medicine AND Adjunct Professor of Physiology and Cell Biology AND Director, Division of Cardiovascular Medicine AND Deputy Director, Davis Heart & Lung Research Institute
- Clara Bloomfield, MD, Comprehensive Cancer Center
- Michael Grever, MD, Chair, Department of Medicine
Oversight of the overall project was provided by William Shkurti, Senior Vice President of Finance for The Ohio State University. Mr. Shkurti provided the day to day direction of the analysis, facilitated access to data and individuals and served as the liaison to the Medical Center Master Facilities Plan Task Force appointed by the Board of Trustees. Three teleconference meetings were held with Task Force to review the scope/charge to the consultants, the preliminary findings of the analysis and the final report. These meetings occurred from April 2007 through early July 2007.

Relationship with Deloitte Consulting
Throughout the review process, Hammes Company and Deloitte Consulting have interacted with each other and the various key constituents of the project. Specific areas of interaction are outlined below.

- The degree to which the strategic evaluation supports or doesn’t support the underlying volume projections impacts facility need and the Master Facilities Plan.

- The degree to which the Master Facilities Plan budget does or doesn’t provide a reasonable estimate of the total cost of the project impacts the Financial Projections.

Any sensitivity/risk analysis completed for the volume projections will impact the facility need in the Master Facilities Plan.
IV. MASTER FACILITY PLAN REVIEW

As mentioned in Section II (Hammes Company Charge) of this report, the original RFP identified a scope of work that was to govern the review of the Medical Center Master Facility Plan. This scope of work included the following:

- Review and validate the overall strategy and planning principles driving the Master Facilities Plan, including the relation to the six signature programs
- Review and validate individual and total project budgets of Phase I, including comparisons with appropriate benchmarks
- Review and validate individual and total project schedules for Phase I, including project sequencing for feasibility of scheduling, coordination and attainability based on a fully functioning Medical center during construction
- Review and validate risk management of all facility and financial contingencies, including loss of revenue projections if the project is not brought on line as proposed in the master plan schedule and opportunities for mid-course adjustments
- Review and validate preliminary plans for Phase II

This scope of work was subsequently expanded upon through the identification of “Key Questions” that were intended to provide additional clarity regarding the key issues for review. These key questions are:

- How does the "fast track" timetable compare to appropriate benchmarks? Are the related risks addressed appropriately?
- Are the architect, CM and other fees appropriate to a project of this nature?
- Do the University and the Medical Center have sufficient staff of appropriate backgrounds on hand to manage this project?
- Are there any natural break points or check points where adjustments can be made after construction has started?
- Have infrastructure needs (utilities, access, etc.) been appropriately addressed?
- Have the risks of building in a flood plain been appropriately addressed?

Outlined in this section of the report are the results of our analysis of the Medical Center Master Facilities Plan, including the following components:

- Description of the project – How does the Master Facility Plan relate to the overall strategic direction of the Medical Center and what are the key components of the capital budget?
- Key Project Participants – Who was engaged in the development of the Master Facility Plan?
- Throughput Analysis – Are there sufficient programmatic elements (beds, ORs, etc.) to accommodate the projected volumes (volume projections were reviewed separately by Deloitte Consulting)?
- Facility Solution – Is there sufficient space (square footage to accommodate the programmatic elements and what compromises and alternatives have been considered during planning?
- Background and History of Project Cancer – How does the current Master Facility Plan relate to Project Cancer and how does the current plan impact the cancer program?
- Budget – How does the project budget compare to Hammes Company benchmarks?
- Risk Factors – What risks exist in the implementation of the Master Facility Plan?
- Schedule – How realistic is the projected schedule and what is the impact on the budget?
IV. MASTER FACILITY PLAN REVIEW

- Issues raised by OSU Board – What level of risk exists in the issues identified in the “Key Questions?”

Description of Project

Phase I of the Site and Master Facilities Plan / South Campus Master Plan Implementation includes a series of projects whose goal is to improve the profile of The Ohio State University Medical Center by moving it into the top quartile nationally through a focus on the six identified Signature Programs (Cancer, Critical Care, Heart, Imaging, Neurosciences and Transplantation) including a “top ten” Comprehensive Cancer Center. Some of the key planning elements and goals were:

Ohio State University Academic Plan
- Move Ohio State University into the top tier of public research universities
- Medical Center must become top tier
- Guides all University priorities

Biomedical Research
- Highest University priority
- To be realized in the next five years

Goals
- Become a high performance organization and workplace of choice
- Be among the top quartile of academic medical centers in each “mission” area (Signature Programs) by 2008 using nationally accepted rankings
- Generate an investment fund (5% of annual revenue) for mission development

In addition to the focus on the six Signature Programs, three Supporting Programs also were identified. These programs are Biomedical Informatics, Behavioral Medicine and Genetics.

To accomplish this plan, a Site and Master Facilities Plan was developed by the Medical Center. There were several iterations of the plan and the different phases within the Plan. The current configuration of the “Project” is driven by the following Objectives (from supporting documentation):

- Enhance the identity of the Medical Center through increased visibility and accessibility from Cannon Drive and Route 315.
- Define and maintain a strong external identity for the James Cancer Hospital, Ross Heart Hospital and University Hospital while incorporating a shared platform of diagnostic, treatment, and ancillary and support services.
- Develop pedestrian, vehicular and open space connections between the South Campus and the Main Campus.
- Create an environment of contemporary academic healthcare that merges research, clinical and education missions in a manner that will allow Ohio State University Medical Center to reach national top quartile status among academic medical centers.

A project scope and series of projects was developed to identify the optimal approach to accomplish the project goals while maintaining a prudent position relative to available funding and achieving maximum results for the capital expenditures. In developing the scope and various projects, compromises were made relative to allocation of funds among specific projects in the initial Phase I projects with the goal of advancing the initiatives of each of the Signature Programs to the best of those financial restrictions. While these compromises were initially
understood to be acceptable, recent events have lead to further discussion in an attempt to achieve consensus from all participants.

The overall plan is currently configured to:

- Shift the clinical center of gravity to the west.
- Connect the clinical and research mission areas of the campus to encourage development of translational research.
- Develop a network of green spaces to enhance way finding to orient pedestrians to Medical Center and University campuses.
- Enhance neighborhood connections under the guidance of the Ohio State University Master Plan.

To accomplish the task of implementing this plan, the following projects were developed and included in the Phase I Implementation Plan:

- Demolition of the South Cannon Parking Garage to enable growth of the Medical Center complex west to Cannon Drive. The displaced parking will be replaced and increased by additional surface parking west of Cannon Drive, a 600 vehicle parking garage west of Cannon Drive and a 600 vehicle parking garage on the current Spirit of Women’s Park site and relocation of the athletic fields and the Spirit of Women’s Park.
- A new Cancer Hospital with 224 acute care beds, related diagnostic, treatment, ancillary and support services located to the west of the existing Rhodes Hall facility.
- A new Critical Care bed tower with 132 critical care beds including 36 cancer critical care beds and an ambulatory bone marrow transplant unit also located above a shared platform with the new Cancer Hospital to the west of the Rhodes Hall facility.
- A new Diagnostic and Treatment core that will serve as the platform for the new Cancer Hospital and Critical Care Tower and also act as a connecting link between Rhodes Hall, the Ross Heart Hospital and the new Cancer / Clinical building. This core will include invasive and non-invasive diagnostics, operating rooms, imaging components as well as public entrances and support services for the expanded clinical programs.
- Major renovations to Rhodes, Doan, Cramblett and the James Cancer Center facilities to upgrade mechanical and electrical systems to extend the life expectancy of these systems to that of the facilities themselves and to enhance the conversion of the use of those facilities as dictated by Master Plan backfill needs.
- Interior renovations to Rhodes, Doan and James Cancer Center to accommodate the backfill requirements identified in the Facilities Master Plan.
- Modifications and upgrades to infrastructure and roadways to accommodate the new construction and future needs of the Medical Center and the Campus.
- The Plan also includes three major “enabling” projects which are the vertical expansion (60 Beds) of the Ross Heart Hospital, the relocation of the MRI facility and the construction of a new Faculty Office Digestive Disease facility north of the Doan Hall facility. These three projects are under construction and at various stages of completion. Combined they represent approximately $73 million of the total budget of $780 million.

Currently, an Executive Team of representatives from the University and Medical Center, HOK (Architect) and Jacobs Engineering (Construction Manager) are managing the development of the various projects not currently under construction. The Executive Team will manage these projects through the Schematic Design process after
IV. MASTER FACILITY PLAN REVIEW

which the individual projects will be bid under State of Ohio guidelines. Individual design firms will be hired and HOK will assist with the further development of the plans and specifications. Either a “global” construction manager (preferred and recommended) or individual construction managers will also be hired to oversee the projects, develop and monitor schedules, assist in the further development of budgets and to coordinate interrelated project elements.

The State of Ohio requires multiple prime contracts for projects of this nature. Individual prime contract work will be bid as construction documents are developed and bid package requirements are identified. A “fast track” approach will be used for the Cancer / Clinical project which will identify early construction packages that will be bid before finalization of the full Design Development process. This will allow for site, foundation and structural work to be bid and long lead time materials to be ordered in a time frame that will expedite completion of the construction.

Multiple projects will be in progress at any given time. Overall project management responsibility for the University will rest with the University Facilities Operations and Development (FOD) group assisted by and in cooperation with the Medical Center Facilities staff. Management of this process and the development of timely methods of monitoring progress and cost will be critical to the success of the projects.

Schedules for various projects within the Plan have been developed and are discussed later in this Report. It should be noted that while some of these projects extend into calendar year 2012, the major components of the work are anticipated to be complete in mid 2011 (Cancer / Clinical component).

Key Project Participants

In the development of any project of this nature, magnitude and complexity there are numerous Committees and focus groups that have specific project responsibilities. However, for this project, three groups of key Medical Center participants were instrumental in taking the plan from the initial planning work done by Tsoi Kobus Associates and KSA to the pre-design stage that was completed in January 2007 under the direction of the Executive Team (HOK, Jacobs and KSA). These groups are:

The Ohio State University Medical Center Senior Leadership
− Fred Sanfilippo
− Peter Geier

The Ohio State University Medical Center Project Executive Committee
− Dan Sedmak
− Chip Soubia
− Mike Grever
− Clay Marsh
− Eric Kunz
− Gail Marsh
− David Schuller
− John Stone
− Kam Sigafoos

The Ohio State University Medical Center Project Steering Committee
− Dan Sedmak
− Michael Caligiuri
− Clay Marsh
− Mike Knopp
− John Stone
− Jack Riddles
− Gail Marsh
− Chris Ellision
− Paul Weber
− Mike Grever
− Kam Sigafoos
− Eric Kunz
− David Schuller
− Hagop Mekhjian
− Caroline Whitacre
− Herb Smaltz
− Kathy Dillow
As noted, there are multiple focus groups and a large contingent from the University Facilities Operations and Development group that were important participants at various phases of the development of the Plan. Similarly, in the development of Schematic Designs for projects, there is a large contingent of users and department personnel that play a key role in the successful completion of the specific phase of planning or development.

**Throughput Analysis**

As part of the Master Space Plan (MSP) second opinion study Hammes Company conducted a review of the methodology and key assumptions utilized to determine the allocation of space resources by KSA. The KSA review specifically focused on areas of perceived concern with the original MSP. Areas that were not indicated to be of concern remained as originally planned. Therefore the Hammes Company review encompassed only those areas evaluated by KSA for potential deviation from the original MSP. For these areas, KSA assumptions were tested against Hammes Company benchmarks and areas of potential risks were identified.

**Historical Review**

Initial volume projections were developed by The Ohio State University Finance and Planning group in the fall of 2004 based upon historical experience, integration of approved business/strategic plans, planned recruitment and projected demographic changes (population growth, utilization rates). Key physician stakeholders were included in the process to provide a reality check for the volume conclusions which were utilized by Kurt Salmon Associates (KSA) in the master space plan feasibility study.

Throughout 2005, Signature Programs were identified and 5-year plans were completed including recruitment and volume projections. KSA led OSUMC through updating the space program requirements included in the MSP based upon the approved tactics and initiatives within the Signature Program plans. The MSP programming report was completed by KSA in August of 2006. This report provided the basis by which OSUMC Financing and Planning developed the Long Range Financial Plan (LRFP). The MSP programming report published in August 2006 is the subject of this review.

**KSA Summary Results**

Volume estimates utilized as space drivers by KSA were developed from three sources:

- Signature Program strategic plans
- Master planning estimates from the Signature Programs
- OSUMC Finance and Planning financial model, also incorporating Signature Program plans

Interviews were held with the leadership of each Signature Program where strategic direction, volume assumptions and any additional program drivers, including recent recruiting efforts, were utilized to adjust volume and space requirements. Signature Program representatives interviewed by KSA in this process, their primary concerns and the result of further KSA review are outlined below.

**Cancer**

**Interviewees:** Dr Caligiuri, Dr. Schuller, Dennis Smith, Jeff Walker and Rachit Thariana

**Concerns:** Further review required of outpatient exam rooms, infusion, surgery with robotics and office space.

**Results:** One exam room module included to account for increased recruiting efforts, infusion bays were deemed sufficient and one additional OR recommended to accommodate the longer throughput of robotic surgeries.
IV. MASTER FACILITY PLAN REVIEW

Critical Care
Interviewees: Dr. Marsh, Dr. Hoffman, Kam Sigafoos, Henry Zheng, Dr. Steinberg, Dr. Cook and Dr. Crouser
Concerns: Appropriate percentage of acute beds as critical care (25% or 30%), appropriate adjacencies and connections to ancillary services for patient safety
Results: Deemed 25% an appropriate percentage of acute beds that should be critical care. CT and procedure space adjacencies were determined to be the most critical.

Heart
Interviewees: Larry Anstine, Dr. Abraham and Vanessa Moses
Concerns: Further review of surgery, outpatient exam rooms and EP labs
Results: One less OR was determined to be necessary due to relatively flat cardiac surgeries, exam room quantity was deemed sufficient and it was concluded that two additional EP labs would be necessary to accommodate recruitment targets.

Imaging
Interviewees: Dr. Knopp, Elizabeth Seely, Jean McCabe and Donabelle Cruz-Huffmaster
Concerns: Further review of MRI and ultrasound based on future utilization and accessibility
Results: Planning for two additional MRIs was deemed necessary.

Neurosciences
Interviewees: Dr. Chiocca, Kyle Sharp, Anand Satiani, Sara Widing and Debra Buonaiuto
Concerns: All areas under further consideration due to early stages of program evolution. Additionally, there existed some potential for outpatient and ancillary volume that could move off site.
Results: It was concluded that all outpatient activities would remain on campus.

Transplant
Interviewees: Dr. Ferguson, Elizabeth Seely, Laura Murdock, Kim Saunders and Kristine Hertl
Concerns: Further review required for outpatient visits and living donor surgeries
Results: An additional OR was determined to be necessary in support of living donor surgeries. Out-patient activities were suggested to remain off campus.

For Non-Signature programs the OSUMC model driven by the Finance and Planning annual budgeting process was utilized to provide volume estimate inputs which were converted to space requirements.

Total 2011 space requirements determined in the KSA Review are included in the table below:

<table>
<thead>
<tr>
<th>Space Type</th>
<th>2011 Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beds</td>
<td>1,207</td>
</tr>
<tr>
<td>Operating Rooms</td>
<td>40 - 44</td>
</tr>
<tr>
<td>Imaging</td>
<td>65</td>
</tr>
<tr>
<td>Exam Rooms</td>
<td>208</td>
</tr>
<tr>
<td>Other Diagnostic and Treatment</td>
<td>103</td>
</tr>
<tr>
<td>Faculty Offices</td>
<td>1,419</td>
</tr>
</tbody>
</table>
**IV. MASTER FACILITY PLAN REVIEW**

**Bed Need Summary**

The following occupancy targets were utilized for the Master Space Plan:

<table>
<thead>
<tr>
<th>Bed Type</th>
<th>Occupancy Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical/Surgical</td>
<td>80%</td>
</tr>
<tr>
<td>Critical Care</td>
<td>65%</td>
</tr>
<tr>
<td>Neonatal Intensive Care</td>
<td>80%</td>
</tr>
<tr>
<td>OB Post-Partum</td>
<td>75%</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>80%</td>
</tr>
<tr>
<td>Behavioral Health</td>
<td>80%</td>
</tr>
</tbody>
</table>

These occupancy targets are consistent with Hammes Company experience with Academic Medical Centers and do not represent an area of risk in the plan.

Generally, the various signature programs felt that the 2014 Bed Need developed during the initial Visioning project remained accurate. However, Neurosciences, which was added as a Signature Program post the Visioning Project, estimated the need for an additional 38 Beds. The Cancer Program indicated that recruitment targets anticipated for 2014 were now estimated to be achieved by 2009. This suggests short term risk relative to space constraints if these recruitment projections are met and that volume growth will likely occur quickly once new capacity is available.

Additionally, 25% was determined to be the appropriate percentage of acute care beds to be utilized as critical care beds. This is also consistent with Hammes Company experience and therefore, not seen as a planning risk factor.

**Imaging**

Imaging projected 2011 volumes and throughput assumptions are shown in the table below along with projected machine demand. The utilized throughput assumptions vary somewhat from Hammes Company benchmarks creating a variance in necessary machines.

<table>
<thead>
<tr>
<th>Modality</th>
<th>Planned Capacity</th>
<th>Annual Capacity per Machine</th>
<th>2011 Demand</th>
<th>HC Benchmark</th>
<th>HC Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td>68,000</td>
<td>8,500</td>
<td>8</td>
<td>6,900</td>
<td>10</td>
</tr>
<tr>
<td>MRI</td>
<td>28,800</td>
<td>3,200</td>
<td>9</td>
<td>3,000</td>
<td>10</td>
</tr>
<tr>
<td>Diagnostic Rad</td>
<td>119,000</td>
<td>8,500</td>
<td>14</td>
<td>7,400</td>
<td>16</td>
</tr>
<tr>
<td>PET</td>
<td>4,800</td>
<td>1,600</td>
<td>3</td>
<td>4,000</td>
<td>1</td>
</tr>
<tr>
<td>Special Procedures/IR</td>
<td>9,900</td>
<td>900</td>
<td>11</td>
<td>1,000</td>
<td>10</td>
</tr>
<tr>
<td>Nuclear Medicine</td>
<td>13,600</td>
<td>1,700</td>
<td>8</td>
<td>3,000</td>
<td>5</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>31,500</td>
<td>3,500</td>
<td>9</td>
<td>3,300</td>
<td>10</td>
</tr>
</tbody>
</table>

*Hammes Company utilizes different throughput benchmarks across several modalities for inpatient and outpatient procedures. In these cases a weighted average was taken utilizing inpatient/outpatient mix from the originally projected OSUMC volumes shown in the table below.
IV. MASTER FACILITY PLAN REVIEW

Utilizing the Hammes Company annual throughput benchmarks with the planned capacity per machine yields slightly different needs across all modalities and suggests under planning for CT, MRI, Diagnostic Radiology and Ultrasound while over planning for PET, IR and Nuclear Medicine.

Additionally, the planned capacity is a significant departure from the volume projections provided in the document titled “MSP Sig Prog for KSA 052506 (Most Recent)".

<table>
<thead>
<tr>
<th>Table 4 – Imaging Volumes and Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>CT</td>
</tr>
<tr>
<td>MRI</td>
</tr>
<tr>
<td>Diagnostic Rad</td>
</tr>
<tr>
<td>PET</td>
</tr>
<tr>
<td>Nuclear Medicine</td>
</tr>
<tr>
<td>Ultrasound</td>
</tr>
</tbody>
</table>

This change is described in the KSA report as due to historic growth coupled with anticipated changes in utilization. Across all modalities but one (IR original volumes were not available) the planned capacity increased from the originally projected volume, in some cases dramatically.

The risk associated with the imaging plan lies in a combination of whether or not the utilization growth/decline occurs as projected and if the throughput assumptions driving machine need accurately reflect operations at OSUMC. Of particularly concern is nuclear medicine which shows the greatest percentage variance in volume and the second greatest throughput. These two variables working in concert create a machine demand delta of 6 (8 required under planned capacity and throughput vs. 2 required under Original Volume projection and Hammes Company throughput). Similarly diagnostic radiology demonstrates a delta of 10 (14 required under planned capacity and throughput vs. 24 required under Original Volume projection and Hammes Company throughput). Throughput and capacity planning assumptions should therefore be revisited to ensure against over or under planning capacity across modalities.

Surgery

Total inpatient and outpatient surgery volumes were developed by OSUMC Finance and Planning and include growth from the Signature Programs. Operating room requirements were developed utilizing both 75% and 80% efficiency as a sensitivity analysis. Surgery duration times were based upon OSUMC experience with Robotics projections provided by the Cancer group. Summaries of the inputs utilized for OR throughput are provided below:

<table>
<thead>
<tr>
<th>Table 5 – Surgery Main Throughput Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
</tr>
<tr>
<td>Inpatient</td>
</tr>
<tr>
<td>Days per year</td>
</tr>
<tr>
<td>% during peak</td>
</tr>
<tr>
<td>Peak hours per day</td>
</tr>
<tr>
<td>Percent efficiency</td>
</tr>
<tr>
<td>Hrs per case w/ turn</td>
</tr>
<tr>
<td>Surgeries per OR</td>
</tr>
</tbody>
</table>


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Table 6 – Cancer and Heart Surgery Throughput Assumptions

<table>
<thead>
<tr>
<th></th>
<th>Cancer</th>
<th>Heart</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatient</td>
<td>Robotics</td>
</tr>
<tr>
<td>Days per year</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>% during peak</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Peak hours per day</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Percent efficiency</td>
<td>75/80%</td>
<td>75/80%</td>
</tr>
<tr>
<td>Hrs per case w/ turn</td>
<td>3.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Surgeries per OR</td>
<td>625/667</td>
<td>521/556</td>
</tr>
</tbody>
</table>

Efficiency rates utilized in the analysis are consistent with Hammes Company benchmarks. Areas for further consideration include consistency of peak hours for heart surgeries with main and cancer (8 vs. 10) and a higher percentage of outpatient surgeries occurring during peak hours. (95% rather than 80%)

Sensitivity analysis was performed on the above factors and it was determined that increasing the peak hours for heart surgeries would not impact the need for ORs while increasing the percentage of main outpatient surgeries within peak hours to 95% would decrease the need for ORs by 1.

Additionally, the planned capacity for ORs varied from the originally projected volumes across main, cancer and heart. The difference between originally projected volumes and planned capacity can be seen in the table below.

Table 7 – OR Planned Capacity

<table>
<thead>
<tr>
<th></th>
<th>Planned Capacity</th>
<th>Original Projected Volume</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>16,800</td>
<td>16,850</td>
<td>0.3%</td>
</tr>
<tr>
<td>Cancer</td>
<td>7,641</td>
<td>9,537</td>
<td>24.8%</td>
</tr>
<tr>
<td>Heart</td>
<td>4,065</td>
<td>3,500</td>
<td>-13.9%</td>
</tr>
</tbody>
</table>

*It should be noted that in the revised capacity planning undertaken by KSA, 1,150 surgeries were shifted from main to cancer and 1,700 from main to heart. This is in addition to volume changes based upon projected market dynamics and has been mirrored in the “Original Projected Volume” in order to provide a like comparison.

Increases in cancer surgeries are anticipated based upon acceleration of recruitment targets and represent a risk if these more aggressive targets are not achieved. Heart decreases are based upon an estimated decrease in cardiac surgery utilization.

Projected OR requirements based upon the KSA methodology is 40-44. Provided the revised recruitment targets are achieved this range is consistent with demand determined utilizing Hammes Company benchmarks.

**Endoscopy**

Endoscopy volumes were estimated by the OSUMC planning and finance department and the planned capacity did not deviate from the originally projected volumes.

Endoscopy procedures per year utilized in the KSA room need calculation was 1,400 which established a room need of 10.9. Hammes Company typically employs an annual throughput of 1,600 based upon higher utilization targets and results in a room demand of 9.5. This discrepancy does not amount to a significant risk of over planning for the project.
Other Diagnostic and Treatment Spaces

Modalities reviewed under in the “Other Diagnostic and Treatment Spaces” section of the KSA review included: Catheterization Lab, EP Lab, Minor Procedure, Radiation Oncology, Chemotherapy and Emergency Department. Of those, only EP Lab was anticipated to deviate from the 2014 master plan. The KSA demand projection indicated 5 treatment spaces as opposed to the originally estimated 4. Assumptions used to determine treatment space requirements by KSA are shown in Table 8. This perceived planned need is similar to that derived when utilizing Hammes Company throughput planning benchmarks and does not suggest an area of planning exposure.

<table>
<thead>
<tr>
<th>Table 8 – EP Throughput Assumptions and Lab Need</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ablation/Cardio-Version</strong></td>
</tr>
<tr>
<td><strong>4.0 CFTE</strong></td>
</tr>
<tr>
<td>2014 Volume</td>
</tr>
<tr>
<td>Days per Year</td>
</tr>
<tr>
<td>Hours per Day</td>
</tr>
<tr>
<td>Utilization</td>
</tr>
<tr>
<td>Case Hours</td>
</tr>
<tr>
<td>Annual Throughput</td>
</tr>
<tr>
<td>Lab Requirement</td>
</tr>
<tr>
<td>Hammes Throughput</td>
</tr>
<tr>
<td>Hammes Estimate</td>
</tr>
</tbody>
</table>

Total Lab Need | Low | High
KSA | 3.5 | 5.0
Hammes Company | 3.2 | 4.6

EP service growth assumptions were derived based upon recruitment of additional clinical FTEs. A summary of CFTE growth projections and the corresponding impact on volume can be seen in Table 9. Recruitment assumptions range between an additional 1.5 CFTEs to an additional 4.5 CFTEs over the planning horizon with the KSA space need based upon the more aggressive figure. Two potential areas of risk exist in this planning methodology: 1) The ability of the Heart program to recruit the projected number of clinicians and 2) any variability in the productivity of the recruited clinicians. In this instance the percentage increase of CFTEs outstrips the projected volume increase in the more aggressive scenario. If the high end recruitment number is achieved and those physicians show similar productivity to the existing clinicians, the suggested lab requirement would be increased by 1 for a new high end need of 6. If this scenario were to transpire the resulting lab space would be slightly under planned. However, this could largely be accommodated through increased operating hours if necessary.

<table>
<thead>
<tr>
<th>Table 9 – EP CFTE and Volume Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.0 CFTE</strong></td>
</tr>
<tr>
<td>Ablation/Cardio-Version</td>
</tr>
<tr>
<td>950</td>
</tr>
<tr>
<td>Pacemaker/ICD</td>
</tr>
<tr>
<td><strong>7.0 CFTE</strong></td>
</tr>
<tr>
<td>Ablation/Cardio-Version</td>
</tr>
<tr>
<td>950</td>
</tr>
<tr>
<td>Pacemaker/ICD</td>
</tr>
</tbody>
</table>
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Ambulatory Exam Spaces

Ambulatory volumes were revised by KSA from volumes originally provided for the Master Space Plan to remove non-clinic activities and activities that did not occur in Cramblett.

OSUMC planning department estimated future clinic volumes based upon assumptions surrounding the following:

- Adjustments to CFTEs
- Relocation of clinics (Gastroenterology, Pulmonary, General Medicine)
- Population Growth rate of 3% per year

Risks associated with this methodology include those previously mentioned corresponding to successful recruitment of CFTEs. Additionally, the OSUMC secondary service area is projected to grow approximately 4 times faster than the primary service area. If OSUMC were able to capture a percentage of outpatient ambulatory growth in the secondary service area proportionate to its inpatient share, the resulting effective population growth to OSUMC across the PSA and SSA would be approximately 4.4%. This can be seen in Table 10. This growth rate represents a high end sensitivity range as ambulatory growth for OSUMC would likely follow more closely with population growth in the PSA and is consistent with the 3% utilized as a base growth assumption.

Table 10 – Market Growth by Service Area

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>2.6%</td>
<td>20%</td>
<td>1,096,456</td>
<td>1,124,931</td>
<td>222,471</td>
<td>5,778</td>
<td>163,770</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>10.7%</td>
<td>11%</td>
<td>570,415</td>
<td>631,636</td>
<td>62,746</td>
<td>6,734</td>
<td>73,597</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1,666,871</td>
<td>1,756,567</td>
<td>285,217</td>
<td>12,512</td>
<td>4.39%</td>
<td>2.23</td>
</tr>
</tbody>
</table>

Counties included in the PSA and SSA definitions are shown in Figure IIIc. 1
Table 11 summarizes the KSA volume projections by clinic type. Gastroenterology, Pulmonary and General Medicine volumes have been removed due to relocation of the clinics from Cramblett. Sensitivity analysis was performed on the impact of population growth for the various clinic volumes at the high end 4.4% projection. This was done exclusive of volume adjustments resulting from a change in the number of CFTEs. Volume adjustments due to CFTE increase or decrease were held constant. Additionally, an exam room throughput of 4.8 visits per day was utilized in the KSA model. This was adjusted up 25% or to 6 visits a day in sensitivity review. The results of this analysis are also shown in Table 11 which indicates a low end demand of 92 exam rooms and a high end demand of 121 rooms. The KSA projection of 116 rooms is safely within this range.
Table 11 – Cramblett Volume and Room Need

<table>
<thead>
<tr>
<th>Clinic</th>
<th>FY 2006</th>
<th>2011 est</th>
<th>2011 @ 4.4% Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Health</td>
<td>5,000</td>
<td>5,800</td>
<td>6,205</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>430</td>
<td>500</td>
<td>535</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>34,310</td>
<td>57,300</td>
<td>60,078</td>
</tr>
<tr>
<td>OB/Gyn Faculty</td>
<td>8,600</td>
<td>4,750</td>
<td>5,446</td>
</tr>
<tr>
<td>OB/Gyn Resident</td>
<td>13,000</td>
<td>15,200</td>
<td>16,252</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>7,500</td>
<td>2,800</td>
<td>3,407</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>9,700</td>
<td>15,250</td>
<td>16,035</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>2,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulmonary</td>
<td>1,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>2,700</td>
<td>3,100</td>
<td>3,319</td>
</tr>
<tr>
<td>Renal/Nephrology</td>
<td>1,750</td>
<td>2,000</td>
<td>2,142</td>
</tr>
<tr>
<td>Neurology</td>
<td>10,500</td>
<td>22,150</td>
<td>23,000</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>2,350</td>
<td>3,300</td>
<td>3,490</td>
</tr>
<tr>
<td>General Medicine</td>
<td>6,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urology</td>
<td>4,700</td>
<td>5,500</td>
<td>5,880</td>
</tr>
<tr>
<td>Total</td>
<td>111,640</td>
<td>137,650</td>
<td>145,789</td>
</tr>
</tbody>
</table>

Room Need @ 4.8
Visits Per Day
116
121

Visits Per Day
92
97

Summary

Planning risk identified in reviewing the KSA space planning model is focused in three principal areas:

- Successful recruitment of projected Clinical FTEs
  - Particularly relative to Cancer, Heart and Neurology
- Accurate projection of utilization changes
  - Particularly as relates to diagnostic imaging and cardiac surgery
- Accurate projections of throughput
  - Particularly in diagnostic imaging and clinic exam space

Facility Solution

The Master Facilities Plan solution was developed in response to the Strategic Plan and the project goals and guidelines. Phase I of the solution attempts to meet the immediate needs of the Strategic Plan although there as been discussion that the plan will not satisfy those requirements at the point in time that the project will be completed. The particular concern is that the Cancer program will not provide enough beds in Phase I to meet the requirements outlined in the Strategic Plan at the point in time that construction is completed. Similar comments were heard with respect to critical care beds and the number of total operating rooms (ORs).

The Master Facilities Plan solution represents a compromise to meet as many of the requirements set forth in the Strategic Plan as possible within the cost parameters established for Phase I implementation. There was not enough detail or preliminary design information for Phase II to allow for an analysis of the plan as a whole. However, without consensus on Phase I, the further analysis of the full Plan is not required at this time.
Program
The overall program and program elements were analyzed in detail and in comparison to other projects of similar nature. In general, the basic concepts and gross-up factors used in the preparation of the program for the Phase I work fall within the basic parameters of the benchmarks. Room sizes and the complement of rooms are within the norms for this type of facility (specifically the Cancer / Clinical project). There are variations or ranges that come into play in this type of analysis. Of equal importance, the gross-up factors used to establish the extended total program square footage are also within the parameters for academic medical center facilities.

It is common for different design firms to use different methodologies or to organize program data differently. For that purpose comparisons are somewhat difficult in that the quality and quantity of the information gleaned in the programming phase can vary as the design is developed further. This, to a degree, can negate some program validation that was done in the Schematic Design phase and cause an increase in program or scope in the Design Development phase. This needs to be monitored closely to prevent potential budget issues. Typically, budgets include design or program contingencies to accommodate these types of situations. In this case, there is not a specific design or program contingency but there are other contingencies available. However, the costs related to program “creep” can be significant based on the intensity of the design in the space where the increased scope is manifested. Without a specific contingency, the design team should be urged to review and re-validate program as the Design Development work progresses. This provides an opportunity for discussion and feedback from the Medical Center before these changes are incorporated into the documents and create a situation where the costs are essentially approved by that acceptance.

Compromises
The approval of the Phase I implementation plan implied that there was an acceptance of the plan by all participants, particularly the representatives of the six Signature Programs. As discussed elsewhere in the Report and in significant detail, it is apparent that the “buy-in” of all parties was not complete. Furthermore, it was and is understood that the Plan as it is currently configured represents a compromise between all parties to advance the overall Strategic Plan. In essence, it provides something of value for everyone while not entirely addressing all the needs of any one of these Signature Programs.

The compromises could be addressed in Phase II of the implementation if that inclusion is timely with growth and projected growth for any given program. If not, it does raise potential issues with maintaining momentum developed in Phase I. There was insufficient information concerning what would be included in Phase II for Hammes Company to make a determination or comment on the timing or elements of that phase of work. Without question, the second phase of the implementation process becomes critical in responding to and addressing the current lack of consensus among the stakeholders. Until it is resolved the actual issues and compromises will not be fully understood. Furthermore, the Master Site Plan needs to clearly address the sites and building locations for the Phase II plan. It is critical that this be thought out in detail as part of the Phase I process to minimize potential conflicts or need to relocate work completed as part of Phase I. It also may provide some insight into issues related to Phase I that needs to be addressed prior to finalization of Phase I as part of the overall plan.

In a practical sense, the issues raised by Cancer relative to the compromises included in the current Phase I Plan are of significant nature if they do impact some of the elements necessary to advance that program to a top ten status. At the same time, is a long term plan that addresses those issues acceptable to those who govern and make those decisions? To that end, there has been a good deal of research included in the development of information included in this Report.

There are other design compromises that should also be reviewed in the context of any overall re-evaluation of the Phase I plan. It needs to be understood that the financial realities of the Project are a limiting factor. Similarly,
the equal weighting of all six Signature Programs is virtually impossible. Nonetheless, those programs need to have a say in how these issues are resolved.

**Alternatives**

There are alternatives to some of the questions that have been raised during the consensus discussions. While many of these have focused on the Cancer issues, other departments do have concerns about how certain needs or requirements can be met by the current plan and, more importantly, whether the current plan might inhibit a better solution in Phase II. These are difficult questions and many of them will have significant cost impacts not only from a construction standpoint but also from the perspective of expenditures to date for design or other professional services that may now have to be performed again to meet new criteria.

This is plainly evident in the Cancer alternative that was preliminarily developed. The potential increase to the project cost would be in the range of $150 million. This is a construction cost for the actual work in place. It does not take into consideration the costs related to “delays” in completion of the work, costs to redesign work already completed and paid for, and costs to the University in various forms (donor hesitation, public relations issues, etc.). The full impact of any changes needs to be studied.


The Ohio State University Cancer Program (OSUCP) has been in existence for more than 30 years, and has long been recognized as a top cancer program in the nation. The OSUCP is comprised primarily of two entities: The Arthur G. James Cancer Hospital and Richard J. Solove Research Institute, built in 1990 (“The James”); and the OSU Comprehensive Cancer Center (CCC), which is one of only 39 centers designated as “comprehensive” by the National Cancer Institute (NCI), a distinction held continuously since 1976. In addition, The James belongs to a small fraternity of cancer hospitals that are exempt from the Prospective Payment System of the Centers for Medicare and Medicaid Services (CMS), and therefore receive more favorable cost-based reimbursement for Medicare and Medicaid patients (the “PPS Exemption” or “PPS Exempt” status).

In 2002, leadership of The James and the CCC began discussions about expanding the cancer program, including research and clinical care facilities, at OSU. External consultants were hired and a strategic planning process was initiated to further analyze the future direction of the cancer programs at OSU. The primary goal arising from this planning effort was for The James/CCC to strive for “Top Ten” status of nationally ranked cancer programs by 2010. This would be measured by a combination of US News and World Report rankings of cancer hospitals and rankings of NCI grant funding of the 39 designated comprehensive cancer centers.

Several factors considered critical to achieving this goal included the preservation of the PPS Exemption and the expansion of research and clinical care facilities to accommodate projected patient growth and additional research faculty. It was also noted that many of the nationally-ranked cancer programs (essentially the “competition” for Top Ten status) are planning significant program and facility expansions as well, and to achieve the desired goal would likely take investment in the $350-400 million range.

During the early part of 2003, the planning process estimated that projected growth in the research and clinical missions of the cancer program would require 50 new lab-based and clinical faculty investigators, up to 50 new inpatient beds, increased outpatient space and as many as 500 new support staff; obviously, this would require significant additional space.

An additional element of the space planning is the fact that the facilities of a cancer center are evaluated and scored by NCI reviewers, which contributes importantly to maintaining the “comprehensive” designation from the NCI. In 1996 the NCI rated the CCC facilities as “outstanding” (the highest rating), but in 1999 the facilities
received a rating of “excellent.” This was due to “…the fact that the Center is housed in many buildings widely-dispersed across the campus [which] provides a less than desirable structure, suboptimal for efficient interaction of the different program and core facilities.”

Based on all of the above, the proposed facility site layout that emerged from the “Project Cancer” planning process called for greater integration between research and clinical programs, and resulted in the following concept plan in September, 2003, with an estimated cost of $350-400 million:

This plan, while being further refined, was presented to the University Board of Trustees on April 2, 2004. At that time, the Board approved the project to move forward to more detailed planning. The resolution of the Board reads: “BE IT RESOLVED, That the President and/or Senior Vice President for Business and Finance be authorized to select qualified architectural/engineering/construction management firms as necessary for The Cancer Program Expansion project, provided that no authorization for construction contracts is to be submitted to the Board of Trustees until a comprehensive business plan is approved by the University.”

In May, 2004 a Project Cancer Business Plan was “published” which outlined the vision and goals for expansion of the cancer program, and included plans for faculty recruitment, facilities and finances.

As described in this business plan, “…it was determined that Cancer Program clinical activities should be reorganized programmatically and that future facility development should to [sic] provide for distributed inpatient and outpatient clinical facilities that will also house the specific research activities appropriate to each setting. …To meet these requirements, a variety of planning concepts were developed, evaluated, and revised to determine the best strategy for future facilities. The plan envisions construction of two major facilities; 1) a new 14-story
inpatient and research tower connected to the existing [James]; and 2) relocation of outpatient services, additional
research space, and a major vivarium in new facilities west of Cannon Drive.”

The proposed capital budget for the facility solution envisioned by Project Cancer as described above entailed
almost 912,000 square feet of space (approximately 743,000 new construction and approximately 189,000 in
renovations to The James), at a total estimated cost of $370,000,000 (approximately $310,000,000 in new
construction, $25,000,000 in renovations to the James and $35,000,000 in support and infrastructure upgrades):

<table>
<thead>
<tr>
<th>Summary of Anticipated Development Costs</th>
<th>BGSF</th>
<th>Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Construction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inpatient Expansion – New construction</td>
<td>291,600</td>
<td>$94,300,000</td>
</tr>
<tr>
<td>Research (new construction for 30 principal investigators)</td>
<td>79,695</td>
<td>$34,000,000</td>
</tr>
<tr>
<td><strong>Total New Construction:</strong></td>
<td>371,295</td>
<td>$128,300,000</td>
</tr>
<tr>
<td><strong>Renovation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James Renovation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ground through 2nd Floor</td>
<td>72,565</td>
<td>$15,000,000</td>
</tr>
<tr>
<td>• Surgery – 4th Floor</td>
<td>19,155</td>
<td>$5,600,000</td>
</tr>
<tr>
<td>• Finishes, floors 3, 5, 7 through 10</td>
<td>97,015</td>
<td>$4,200,000</td>
</tr>
<tr>
<td><strong>Total James Renovation</strong></td>
<td>188,735</td>
<td>$24,800,000</td>
</tr>
<tr>
<td><strong>Total New Construction and Renovation</strong></td>
<td>560,030</td>
<td>$163,100,000</td>
</tr>
<tr>
<td><strong>Ambulatory Care and Research Facility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Construction west of Cannon Drive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ambulatory Care / Outpatient Facility</td>
<td>204,979</td>
<td>$100,800,000</td>
</tr>
<tr>
<td>• Stand alone Imaging Center</td>
<td>18,018</td>
<td>$16,700,000</td>
</tr>
<tr>
<td>• Research (space for 39 principal investigators) (remaining 20 PI's to be housed in BRT)</td>
<td>103,600</td>
<td>$45,800,000</td>
</tr>
<tr>
<td>• Vivarium</td>
<td>25,150</td>
<td>$18,100,000</td>
</tr>
<tr>
<td><strong>Total Ambulatory Care and Research</strong></td>
<td>351,747</td>
<td>$181,400,000</td>
</tr>
<tr>
<td><strong>Support and Infrastructure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structured Parking – 520 Cars</td>
<td></td>
<td>$16,300,000</td>
</tr>
<tr>
<td>Utility / Service Distribution New Tower Site</td>
<td></td>
<td>$5,200,000</td>
</tr>
<tr>
<td>West of Cannon Site Infrastructure</td>
<td></td>
<td>$3,100,000</td>
</tr>
<tr>
<td>Phasing / Gap Strategy (example: BMI relocation, Doan Hall beds)</td>
<td></td>
<td>$10,900,000</td>
</tr>
<tr>
<td><strong>Total Support and Infrastructure</strong></td>
<td></td>
<td>$35,500,000</td>
</tr>
<tr>
<td><strong>Total Estimated Cancer Program Facility Expansion Cost</strong></td>
<td></td>
<td>$370,000,000</td>
</tr>
</tbody>
</table>

“Pink Sheets” Comment (2004)

In the August, 2004 NCI peer review, the following comments were made relative to the proposed facility plan of
Project Cancer:

The Facilities were rated as outstanding to excellent in recognition of the improved concentration
of research sites, but concern was expressed regarding the extent of occupation of the clinical
facilities and the future separation of the inpatient and outpatient activities as described in a
strategic plan called “Project Cancer.”

Facilities will be improved from the last review with new research facilities due to be completed
by 2006. However, there is concern regarding the planned separation of the inpatient and
outpatient facilities as envisioned by “Project Cancer,” and the effect of this plan on clinical research remains to be seen.

Facilities: (Outstanding to excellent merit) The OSUCCC facilities were previously rated as excellent. …Research space continues to be dispersed over a wide area of the campus. …A long-term strategic plan (“Project Cancer”), approved by the Board of Trustees, should add substantially to the existing clinical and research space. These plans have enhanced the facility infrastructure of the OSUCCC and show both institutional and Cancer Center progress in resolving the space issues of the University. Concern was expressed about the separation of inpatient and outpatient facilities as outlined in “Project Cancer;” however, the impact of this aspect of the strategic plan remains to be seen. Overall, the rating for this component reflects the improved research facilities.

OSU Medical Center Facility Master Planning Process

At the request of The University President, the process for developing an area master plan for the University Medical Center and the Health Sciences was initiated in 2003. To achieve the Medical Center’s overall goal of achieving “parity with top-quartile academic medical centers nationwide,” the objective of the planning process was to focus on the ability to expand services in meeting the Medical Center’s research, clinical and education missions.

Facility planning was undertaken to address the overall Medical Center’s facility needs, including the facility needs of the Cancer Program. By late 2005, the original Cancer Program Expansion Project was incorporated into the comprehensive Medical Center Facility Master Plan, as summarized below.

In September, 2005, the Fiscal Affairs Committee of the Board of Trustees, in a document addressing the University’s Six Year Capital Plan, noted that the Board of Trustees resolution of April 2, 2004 (see above) regarding the Cancer Program Expansion Project:

- Allowed planning to proceed, but a comprehensive business plan needs to be approved before the project can go forward. Since that time Skidmore, Owenings [sic], and Merrill, LLP, an architectural firm, has been hired to lead the planning process for the cancer expansion. In addition, a great deal of effort has been devoted to aligning the Cancer Program Expansion Project with the Medical Center Facility Master Plan process, led by TSOI/Kobus and Associates, and the Five Year Business and Capital Plan process, led by the senior leadership staff of the Medical Center and Health System.

- As a result, plans for the Project Cancer expansion and its associated funding have been incorporated into the Medical Center Facility Master Plan Phase I and II implementation.

Noting that the Medical Center is the “single largest user” of University bond funds, the document states that the Medical Center “is currently engaged in three related planning processes that will affect its capital planning process: a long-range strategic plan, a long-range financial plan and a master facility plan that includes Project Cancer and certain health sciences academic units.”

At that time (September, 2005) it was determined that the three related plans mentioned above “are far enough along to reflect, with a high degree of certainty, capital priorities for FY 2007-FY 2008 and estimates for future biennia.” The planning to-date resulted in the following priorities, projects, phasing and cost estimates:
On November 4, 2005, the Board of Trustees approved the Medical Center Facility Master Plan. Included in the “Recommended Plan” were the following features:

The clinical “center of gravity” of the Medical Center shifts west. Investment is targeted there.

Land west of Cannon Drive is primarily developed in future phases, thereby maximizing use of existing assets and minimizing initial site related enabling costs. Its future is ambulatory care development, faculty offices, and associated parking.

Connections among mission areas are nurtured through 12th Avenue becoming a “transitional zone”. Wet research laboratories to the north, and faculty offices / dry-lab research space south of 12th, encourage translational research to the clinical core. Future research buildings tie into this concept.
As the James Cancer Hospital occupies its beds in the new tower, the existing James facility is reclaimed for University Hospitals’ use in supporting “signature programs” in transplant and critical care.

The “visions” outlined above will be realized in phases. The space needs driving the timing relates to projected growth in clinical services, research requirements, the evolution of signature program areas, and faculty recruitment.

**Merger of Project Cancer into the Medical Center Facility Master Plan**

As the overall Medical Center facility planning developed and evolved, certain changes were proposed to the facility plan developed under Project Cancer, and compromise on certain elements of facilities and phasing became necessary in the broader perspective of the entire Medical Center.

Four factors necessitated merging the Project Cancer Plan into the current Master Space Plan:
- Impact on University and Medical Center infrastructure
- Limit on bonding capacity of the University
- High cost of building across Cannon Drive
- Necessity of constructing adjacent clinical space to support patient care

The process that has been followed was robust and allowed for serious debate and discussion. The Ohio State University Medical Center Master Space Plan (MSP) was created to integrate the Project Cancer vision into a Medical Center-wide space plan that recognized other projected needs of the Medical Center, from essential infrastructure renovations to building new critical care beds, to alleviate a severe shortage of these beds that is well below the national academic medical center average.

The specific MSP process of detailed programming and integration has carefully incorporated many of the concepts expressed in the “Visioning Report, The Ohio State University Cancer Program Expansion” prepared by Project Cancer and its consultants…in April 2005. For example, the MSP is composed of two phases for cancer expansion, acknowledging the value of this suggestion in the cancer vision, which states that there will be an “…incremental replacement strategy, utilizing land both west and east of Cannon Drive…”

The MSP Executive Steering Committee, composed of D. Sedmak, G. Marsh, C. Marsh, D. Schuller, J. Stone, and K. Siagafoos served to receive input from the Steering Committee, and make suggestions to the leadership of the Medical Center. In late July and early August 2006, the Executive Steering Committee (ESC) received concerns from Dr. Caliguiri, Dr. Schuller and others that the “Best Buy” MSP did not recognize the safety needs of unstable hematologic ambulatory patients. In response, the MSP ESC made a recommendationon August 23, 2006 to change the MSP design and move the hematologic malignancy clinics to the new cancer hospital. The MSP then received concerns about the safety of solid tumor patients in Morehouse Medical Plaza (off-site) and the challenges faced by physicians in driving back and forth between main campus and Morehouse. A task force created to address this situation, which included Drs. Soubra, Caligiuri, Grever, Schuller, Sedmak, and Eric Kunz and Bill Orosz, developed three options which were presented to the MSP Executive Steering Committee. On November 8, 2006 the majority vote of the committee supported Option 3, to move all of James Ambulatory in Morehouse back to the James Cancer Hospital. This option was felt to effectively deal with the concerns of patient safety and physician time, and placed the ambulatory patients in close proximity to the new cancer tower.

Today, the cancer portion of the Master Space Plan includes a new cancer in-patient hospital, and brings all outpatient services back on campus from the current location in the Morehouse Plaza with the unstable hematologic malignancy patients seen within the in-patient hospital. While it is somewhat difficult to “parse” a comprehensive capital budget into specific service lines, especially as many diagnostic,
treatment and support spaces are shared, approximately $300-350 million of the overall budget (approximately 45%) can be ascribed to the cancer program, including the following:

- Actual construction of the New Cancer Hospital and including other project (soft and others) costs is approximately $300 million
- A proportional allocation of parking (10th Avenue Structure) would be approximately $10 million (based on allocation of square footage between the New Cancer Hospital and the Clinical Expansion)
- The infrastructure and roadways component would be approximately $23 million (allocated as a percentage of construction cost for the three enabling projects, the Cancer / Clinical project, the 10th Avenue Structure).

The proposed facility plan for the overall Medical Center (currently referred to as the “Best Buy” plan) calls for the westward expansion described above, provides a new-construction cancer tower and critical care tower, and provides for significant renovation to some of the existing space within Rhodes-Doan and The James.

Of significant note is that the radiation oncology services, currently in The James, will essentially remain where they are, with the new cancer inpatient tower at the west end of the new facilities. This can be more easily seen below:
IV.  MASTER FACILITY PLAN REVIEW

NCI Reviewer Letter and Negative Impact on Top 10 Cancer Status

In the Fall of 2006, the External Scientific Advisory Board (ESAB), a group charged with reviewing the scientific progress of the OSUCCC researchers, identifying strengths, weaknesses and opportunities of the overall research portfolio and strategically advising the OSUCCC leadership, conducted a site visit and review of the OSUCCC. In a report issued in October, 2006, the ESAB expressed significant concern about the changes from the prior Project Cancer facility plan to the overall Medical Center Facility Master Plan (the “Best Buy” plan).

In contrast to the previous visits of the ESAB, the plans for the Center’s expansion seem to have encountered some disturbing alterations. …There has been a substantial departure from the University’s original commitment to a centralized, unique facility coupled with changes in the scope of the project and placement of facilities that, if pursued, would seriously jeopardize the success of the OSUCCC in achieving its goals of being a top-tier cancer center and a leader in translational research and state-of-the-art cancer patient care. …[The] separation of clinical and research facilities will make translational research more difficult, will reduce the interaction between clinicians and research scientists, will be a disincentive to continued high level recruitment, and will compromise the ability of the OSUCCC to achieve the excellence it seeks.

Representatives of the ESAB learned first hand from a tour of the Morehouse Plaza (offsite) about 1-2 miles from the main campus and the OSUCCC,…that the current separation is creating significant impediments for the delivery of state-of-the-art cancer care as well as the conduct of cancer clinical research. …Also of importance, faculty practicing at Morehouse Plaza are literally “cutoff” from the academic lifeline of the OSUCCC which will impede their academic development and ability to “translate” research to and from their basic science colleagues in the clinic.

It should be noted that the facility plans of both Project Cancer and of the Medical Center Facility Master Plan help to address these separation concerns by having all inpatient, outpatient and research activities and programs contained on the primary Medical Center campus; both proposed facility solutions did not house all cancer services in a single facility (i.e., there was some degree of physical separation of inpatient and outpatient in both plans), and virtually all facility plans or proposals seen to date have some degree of separation of inpatient and outpatient activities.
IV. MASTER FACILITY PLAN REVIEW

The October, 2006 ESAB report also notes that “this very point was clearly brought to the attention of the OSUCCC leadership as a concern” in the 2004 peer review: “…However, there is concern regarding the planned separation of the inpatient and outpatient faculties as envisioned by Project Cancer, and the effect of this plan on clinical research remains to be seen.”

Thus, the ESAB reviewers recognize that the current facility situation is not the most conducive to achieving top-tier status. However, both Project Cancer and the Medical Center Facility Master Plan address the separation issue with their respective facility solutions. While neither solution appears to be the “perfect” answer, it seems clear that either represents a significant improvement over the current facility situation, and should be viewed as both an interim compromise solution, as well as a “step in the right direction” toward ultimately achieving the desired state, albeit further in the future.

Potential Impact on CCC Status and PPS Exemption

Based in part on the concerns raised by the ESAB, and in part on a letter to the University Board of Trustees dated January 24, 2007 from area community members and James Foundation Board members, there has been concern that the changes to the facility plan envisioned by Project Cancer could jeopardize both the NCI designation of “comprehensive” and the PPS Exemption:

The once, “state of the art” hospital that was originally on the drawing board, has been so drastically reduced that The James may not even qualify to be a NCI certified hospital. It is possible that The James could lose its DRG tax exempt status which could represent a loss of up to 30 million dollars annually.

While presenting the facts only from a cancer-centric point of view, this letter nonetheless made clear the extent of the concerns felt by the cancer program, as well as the apparent and growing chasm between Medical Center leadership and The James leadership; it also made the rift more or less public knowledge, and necessitated further review and analysis.

Although the NCI is the final arbiter of whether the OSUCCC can successfully retain its designation as a “comprehensive” cancer center, it appears that this status is most likely not in jeopardy. Based on the general criteria necessary to achieve comprehensive status (…the term “comprehensive” as used by the NCI requires more than state-of-the-art care and services and includes a strong research base interactive with a wide spectrum of prevention, care, education, information and dissemination activities that broadly serve communities, regions of the country and often the Nation), coupled with the fact that the OSUCCC has been designated as a comprehensive center, uninterrupted, since it first attained that status, would likely lead a reasonable person to conclude that the change to the Project Cancer facility plans would not result in the loss of the comprehensive status of the OSUCCC. This would seem to be particularly true as the “Best Buy” plan appears to provide significant improvements over the current and existing facility layout of having inpatient and outpatient services separated by significant distance.

It is not a stretch to state that the people and the programs of a cancer center are probably more important to achieving or retaining the “comprehensive” designation from the NCI than facilities alone; in point of fact, the OSUCCC has been a “comprehensive” cancer center since the 1970's despite any historical and/or existing facility “shortcomings.” Thus, the retention of that designation would not appear to be impacted by the Medical Center’s current “Best Buy” MSP.

Given the fact that much of the growth occurred over the period when there was increased coordination between The James and the Medical Center, it is possible that the bigger threat to retaining “the third C” may arise from the apparent and more recent dissension among the upper echelons of the leadership of the Medical Center and The James. Absent some reconciliation at the leadership levels, it would appear that future recruiting of top-notch
faculty and scientists could be difficult, with a potentially negative effect at both The James and the Medical Center as a whole. This situation would appear to present the greater risk than the facilities of the Medical Center campus.

As for the potential loss of the PPS Exemption for The James, that entails legal matters that are beyond the scope of the consultants involved in the MFP review. That status has been conferred by, and really remains at the discretion of, the Centers for Medicare and Medicaid Services (CMS). While there are criteria and regulations that provide guidance in this matter, the potential loss of that status appears to hinge on governance and control over the activities of the cancer hospital and programs. The primary requirement, as we understand it, centers on the separateness and division of governance and leadership of the cancer hospital from that of the Medical Center. Although The James has had its own “provider number” since inception, it has in reality been very closely aligned with the Medical Center in terms of shared resources and overlapping control. However, the administration of both The James and the Medical Center have carefully monitored this situation and status, and The James has been involved in numerous discussions regarding the PPS Exemption directly with the CMS; to the best of our knowledge, at no time has the status of the PPS Exemption been in jeopardy.

Moreover, there have been several changes in the structure of the OSU Health System in the last decade, and in 1999 and 2001 external legal counsel advised OSU that the administration and governance provisions enacted met the requirements of the PPS Exemption. It has been a tenet of all facility planning efforts to maintain the PPS Exemption, and it is our understanding that the University legal department has developed a new corporate governance structure for the OSU Health System that addresses issues and concerns surrounding the PPS Exemption.

On a related note, a different section of this report addresses the “Funds Flow” between The James and the Medical Center; the financial benefits and implications of the PPS Exemption are discussed there.

**Benchmark / Comparison to Other Top Cancer Centers**

In 2006, *US News and World Report* ranked The James 21st in its Top 50 Cancer Programs; it has been reported that the OSUCCC was ranked 16th among NCI-designated comprehensive cancer centers based on grant funding.

As part of Project Cancer analyses, it was noted that significant investment in programs and facilities are planned by numerous cancer centers and hospitals, with an average planned investment of $374 million over a five-year period. Included on the list were 4 of the current Top Ten cancer institutions.

It has also been noted that seven of the Top Ten cancer programs noted in the *US News and World Report* rankings are part of larger academic medical centers/institutions, similar to OSU. Three of these (University of Texas MD Anderson, Dana Farber/Harvard and University of Washington) are among the elite PPS Exempt group of cancer hospitals.

Notably, The James views its peers as the group of ten hospitals that are PPS Exempt, of which only three are “affiliated with” academic medical centers, including The James.

Based on the above, it appears one issue is choosing which group of cancer hospitals to compare/benchmark against. While The James is clearly a member of the elite group of PPS Exempt cancer hospitals, it also clearly is a part of an academic medical center; therefore, it seems prudent to include both PPS Exempt and academic medical center cancer programs for benchmarking purposes.

Deloitte Consulting, in their report, have provided extensive information with respect to their comparisons/analyses of other cancer programs (of the 12 cancer programs they reviewed, 4 are among the PPS Exempt group, 11 are NCI-designated CCCs, and 10 of which are either part of an academic medical center or at...
IV. MASTER FACILITY PLAN REVIEW

least have an affiliation with a University). To paraphrase from their report as it relates to facility issues, most, if not all, of the cancer programs reviewed have dispersion among their various cancer programs and services. Multiple facilities and sites were commonly reported, and the “ideal” of co-located research/clinical/faculty office space is rarely achieved. Most reported that they “work with what they have” and “do the best they can.” This would seem to buttress the argument that people and programs, not necessarily facilities, are the driving force behind successful cancer programs.

BUDGET

Background
As part of the analysis of the Project Budget, Hammes Company reviewed the individual budgets for the specific project components as well as the aggregate cost for all of the projects. This type of analysis allows for the ability to review each project individually and make an appropriate assessment relative to the specific project but also allows for a more global analysis that could identify the ability for movement of funding between project elements if that is identified as an acceptable method of balancing the overall project budget.

It should also be noted that the three projects that are currently under construction were not reviewed in any significant detail. Based on information provided, these projects are moving forward within parameters established for each project. Furthermore, project status information (accounting) indicates that these projects, in aggregate, are currently at or under the identified budgets and, therefore, the conclusion drawn from the review is that they will continue to maintain that status and that there are sufficient contingencies remaining to complete these projects. The MRI project is the only project currently over the projected budget amount (by approximately $400,000). Proactive and cost conscious management of the project to its completion is vital to maintaining the overall aggregate budget goals for the three projects as a whole. Understanding the reasons for the budget overruns will be a useful tool in understanding potential issues (unforeseen conditions, quality of documents, contracts, etc.) that might impact the other projects that are part of the Master Facilities Plan.

The three aforementioned projects are:

- The addition (vertical expansion) to the Ross Heart Hospital ($32.4 million) which is currently under construction with a projected completion in the Fourth Quarter of 2008.
- The Digestive Disease Tower / Faculty Offices (adjacent to the Doan Building) which is under construction ($34.2 million) with a projected completion in the Fourth Quarter of 2007.
- The MRI facility ($7.1 million) which is also under construction and scheduled to be complete in the Third / Fourth Quarter of 2007.
IV. MASTER FACILITY PLAN REVIEW

Table 12 - Project Status (Costs)

<table>
<thead>
<tr>
<th>Costs Committed Through 2/2007</th>
<th>Balance to be Committed</th>
<th>Projected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00 Master Facility Projects Currently Under Construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ross Heart Hospital Expansion</td>
<td>$32,352,407</td>
<td>$25,781,887</td>
</tr>
<tr>
<td>Digestive Disease Tower / Faculty Offices</td>
<td>$34,200,000</td>
<td>$28,790,037</td>
</tr>
<tr>
<td>MRI Project</td>
<td>$7,149,416</td>
<td>$1,327,346</td>
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<tr>
<td>Subtotal</td>
<td>$73,701,823</td>
<td>$55,899,270</td>
</tr>
<tr>
<td>2.00 Remaining Master Facility Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer Hospital</td>
<td>$300,408,925</td>
<td>$1,486,537</td>
</tr>
<tr>
<td>Clinical Expansion</td>
<td>$162,913,250</td>
<td>$874,744</td>
</tr>
<tr>
<td>10th Avenue Parking Garage</td>
<td>$16,192,384</td>
<td>-</td>
</tr>
<tr>
<td>West of Cannon Faculty Office Building</td>
<td>$17,758,836</td>
<td>$33,953</td>
</tr>
<tr>
<td>West of Cannon Parking Structure</td>
<td>$14,750,812</td>
<td>$26,357</td>
</tr>
<tr>
<td>Infrastructure / Roadways</td>
<td>$41,087,761</td>
<td>$60,300</td>
</tr>
<tr>
<td>Rhodes, Doan, James MEP / Life Safety Upgrades</td>
<td>$99,918,250</td>
<td>$23,500</td>
</tr>
<tr>
<td>Rhodes, Doan, James , Cramblett Renovation</td>
<td>$43,963,648</td>
<td>-</td>
</tr>
<tr>
<td>Other (Playfields)</td>
<td>$3,679,755</td>
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<tr>
<td>Owner Program Contingency (Adjusted / Uncommitted)</td>
<td>$5,624,556</td>
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<tr>
<td>Subtotal</td>
<td>$706,298,177</td>
<td>$2,505,391</td>
</tr>
<tr>
<td>3.00 TOTAL</td>
<td>$780,000,000</td>
<td>$58,404,661</td>
</tr>
</tbody>
</table>

Combined these three projects represent $73.7 million of the overall $780 million project budget. Table 12 indicates the current status of all project components and the representative costs committed as of February 2007 (based on information provided by the Project Executive Team). The “Costs Committed Through February 2007” represents construction in place or other costs committed for materials and services. In total, for all projects, $58.4 million has been committed to projects through February 2007. The costs committed to date on projects not yet under construction represent fees paid to the Executive Team and other expenses to allow the Schematic Design to move forward.

Table 13 identifies the current design and/or contractual status of the projects based on information provided by the Executive Team. It should be noted that projects identified as being “On-Hold” will not maintain the completion schedules noted. This will be discussed further in the Schedule Section of this Report. It should also be noted that, at this time, the responsibility of the Executive Team does not extend beyond the completion of Schematic Design. After completion of that phase for each individual project, the intention is that bids will be taken to identify the individual Architectural / Engineering firms and Construction Managers to execute these projects from Design Development through construction. This process will follow State of Ohio regulations governing that process. The Executive Architect (HOK) will be able to participate, as a subcontract / consultant to the selected Architectural firm to ensure continuity of the design concepts through the Design Development and Construction Documents phases. Limitations have been placed on the maximum involvement and fees that could be achieved by the Executive Architect and the exact methodology for their continued involvement needs to be finalized.
The Executive Team concept being used presents a unique challenge for the Ohio State University from a contractual perspective. There are several areas where particular attention needs to be paid to responsibilities and roles particularly when projects move from the Schematic Design phase to the Design Development phase. It is at this point that the responsibility of the Executive Team is diminished and the translation of the information from that team to the individual project teams is critical. Specific areas of concern include:

1. Maintaining the design concepts from one Architectural firm to another can be somewhat problematic. There is an enormous amount of detail in the design process that requires a seamless transition from one firm to another. By having the Executive Architect remain with each of the projects in a “consulting” role, the likelihood of that transition being successful is higher than under the alternative scenario (no carry over from the Executive Architect). However, it also begs the question as to why the Executive Architect would not finish the Design Development process and furnish to the project Architectural firm a completed set of Design Development documents thereby diminishing the need for interpretation of the design concepts by the project Architectural firm. The project architectural firm would only be responsible for the Construction Documents which leaves significantly less room for interpretation of the design intent or concepts.

2. There is a propensity on the part of design firms to take the material developed by another firm and put their “stamp” on the project. In some cases this may be an acceptable alternative should the new firm have the planning capability and knowledge of the project to make those adjustments without compromising the intent of the original design. An improvement to the original design should never be rejected, but it requires thorough research to ensure that there are no ancillary impacts that might have a negative impact on the overall functionality of the project. The placement of the Executive Architect in the role of a consultant to the selected project architect could create some concerns in that regard.

3. Contractual requirements need to be very clear as they relate to the responsibilities of the Executive Construction Management firm (Jacobs) and the budgets and schedules developed as part of the Schematic Design process. In this type of scenario (State of Ohio requirements concerning bidding the work), there is no ability to tie the Executive Construction Management firm to any responsibility for the budgets or schedules. Likewise, it would be difficult to get bidding firms to agree to them given that they were not involved in the development of either one. In essence, it becomes a requirement of the Owner to validate the budgets and schedule to determine their adequacy for each of the project components.

4. The multiple prime contract process used in the State of Ohio will complicate this process further as the budgets will now be broken down into individual prime subcontracts and it will be incumbent upon the selected construction manager or general contractor to accumulate cost data and bids and develop overall budgets and then develop schedules that all parties can agree to and work within.
5. It is more likely that under the required bidding scenario schedules will differ from those developed in the Schematic Design process, but in the case where bids do not meet budget requirements there could be significant issues. The schedules do not allow for any redesign or value analysis period should bids exceed budgets. The variance from budget would dictate the complexity and length of such a process if necessary. If variances are significant, re-design or design modifications could cause a substantial delay in the schedule.

It is also important to understand the process involved in bidding this work. Under the multiple prime contract scenario, there will be multiple bid packages and bid dates. It is our understanding, based on discussions with the project teams, that there will likely be a construction manager or general contractor responsible for each individual project. The use of an “executive” construction manager for all projects has been discussed and would likely be a favorable option to mitigate potential gaps or misunderstandings in scope and / or cost between projects and to make sure that the coordination between projects, particularly where they interface with one another, is addressed appropriately. In either case, there is going to be an incredible amount of information passing between the parties contracted on each individual project as well as between project individual project teams. Managing this information will be critical to success.

While our evaluation of the project budget does not take all of these outside risk factors into consideration, the validation of adequate budgets and schedules can go a long way toward mitigating potential risks relative to the balance of the bidding and procurement process.

Analysis

Based on the review of individual project budgets and the individual elements of those budgets, Hammes Company developed some comparable budgets based on “benchmark” information obtained through a national project data base developed as part of Hammes Company’s national healthcare development / program management organization. The intent of developing these budgets is to provide an independent global analysis as an alternative to budgets currently in place to make sure that the current budgets are evaluated appropriately.

The process used in the development of budgets for this evaluation / analysis was similar to that used for multiple national healthcare clients in which construction costs and risk factors are evaluated based on program requirements as well as assumptions relative to the more ambiguous portions of the design that are significant variables from project to project (site work requirements, infrastructure requirements, equipment assumptions and requirements, renovation or tie-ins to existing buildings, etc.).

The following is a brief description of the process followed in developing the comparison budgets:

1. Program summaries were used to develop basic building components and to provide a basis for validation of the overall square footage of each project.

2. Based on program summary information, unit costs were attached to the specific project for the core and shell and then the individual buildouts of major departments. These are typically square foot costs based on similar projects. In the case of parking structures pricing is based on square foot costs or costs per vehicle. Multiple projects also provide the data for these comparisons.

3. Assumptions are made relative to some of the details that are not fully developed at this time. This would include the aesthetics and articulation of the building enclosure, level of finish on the building interiors, base equipment assumptions (owner furnished and contractor installed versus owner furnished and owner installed, etc.). This is a key element in understanding potential variables in the analysis.

4. In cases where there is significant detail available relative to sitework and geotechnical conditions, a more accurate construction cost can be developed for those items. In this case, information available form the Executive Team and / or the Owner have been used to formulate the site related costs.
5. Project soft costs are developed using a similar type data base listing to make sure that all appropriate costs can be identified, and a decision can be made to determine if they are required for the specific project. Where actual costs or fee percentages are known they are used. Where they are not known, baseline assumptions are included based on experience factors and the national data gathered by Hammes Company. Being in the market and buying these services on a regular basis allows for some good market intelligence.

6. It should also be noted that some fees are specifically identified in the information provided and those percentages have been used in the development of these budgets. This includes the Executive Architect and Construction Manager and the Ohio State University Department of Facilities Operation and Development (FOD).

7. One of the most ambiguous areas relates to equipment and technology requirements. In the development of these budgets typical base equipment and furnishing costs were included using the program information as the driver for the identification of the number of rooms and potential number of pieces of equipment used to develop the base numbers. This can be a key area of concern until such time as more information is developed relative to equipment requirements.

8. Technology is also a critical element as the level of technology is constantly increasing in hospital facilities. Beyond IT and telecommunications systems, budgets include significant costs for nurse call systems, telemetry, data cable infrastructure and PACs capability. Assumptions are made relative to the location of systems (departments) as well as to the type of technology (digital imaging).

9. Contingencies are critical in the analysis of the adequacy of the information used for the development of the budget. Contingency percentages used for the comparison budgets reflect those included in the information provided. There are concerns about how, under multiple prime contracting, construction / design contingencies are held and managed. They have been separately addressed in the comparison budgets to ensure that they are in place and included as part of the comparison.

In should be noted that in the development of the comparisons, the Infrastructure / Roadways and the RDJC MEP/Life Safety Upgrades were excluded. The nature of these particular project components makes an accurate comparison difficult. These budgets were evaluated differently from the others and are subject of discussion later in this Report.

In aggregate, approximately $560 million of the remaining project budgets (approximately $706 million which excludes the Ross Heart Hospital Expansion, the Digestive Disease / Faculty Office Building and the MRI Expansion) were subject to the comparison budgets developed by Hammes Company. In total the variance was approximately $22 million or 4% of the total cost. Table 3 provides a breakdown of the total cost for each project included in the comparison and identifies a variance between the current budget and Hammes Company comparison budget.

A 4% variance at this stage of development would not be considered critical, particularly since the current Ohio State University budgets are in general higher than the comparisons. As a matter of course, we always caution that budgets that are too conservative can have drawbacks that are problematic for decision making. A conservative budget allows for inclusion of the elements included in the design but significant savings once the work is bid or “bought out” could also result in some disappointment relative to possible program components that were not included for budgetary reasons. Including them at a later date when potential or actual savings are identified typically costs more or results in a delay as designs are modified to incorporate these items. In this case, it appears that from a program perspective that would not be the case. Nonetheless, at this point in time and based on the level of documentation available the 4% variance is acceptable. This variance needs to be monitored.
by the Owner to ensure that the scope does not increase and absorb these funds without agreement on the part of the Owner.

Each of the projects included in Table 14 were reviewed and compared individually and in greater detail. A separate construction and total development budget was generated for each of these projects and is included in summary form with the narrative for each of the project components.

<table>
<thead>
<tr>
<th>Table 14 – Total Project Budget Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Clinical / Cancer Building</td>
</tr>
<tr>
<td>Faculty Office Building - West of Cannon</td>
</tr>
<tr>
<td>Parking Structure - 10th Avenue</td>
</tr>
<tr>
<td>Parking Structure - West of Cannon</td>
</tr>
<tr>
<td>RDJC Renovation</td>
</tr>
<tr>
<td>Spirit of Women's / Playfields</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Cancer / Clinical Building

The single largest components of the overall implementation plan are the Cancer Hospital and Clinical Building. They have been reviewed as a single project as they share the same base platform. The program summary used indicated a total square footage of 571,600 square feet.

Both the Hammes Company and Jacobs Engineering budgets are based on program square footage and square foot construction costs based on data base information. In both cases, costs are assumed to be current and then escalated for market location and time (particularly escalation). In both cases the escalation assumption is to the mid-point of the Jacobs construction schedule. The Jacobs escalation factor is built into the costs shown in their budgets. The Hammes Company estimate shows the escalation as a separate line item (which allows for tracking of the use of those funds).

Given the uniqueness of the site for the project, the actual sitework cost (Civil Structures) cost included in the Jacobs budgets has been used for the comparison budgets. Additionally, the 1% premium for “sustainability / life cycle” costs has been included in the comparison budget.

The Jacobs budget did not specifically address a “design / estimating” contingency as these are apparently included outside the construction cost (in overall project contingencies). A 5% design contingency has been included in the comparison budget.
Table 15 – Cancer / Clinical Building Comparison

<table>
<thead>
<tr>
<th>1.00</th>
<th>Ohio State University Medical Center Budget</th>
<th>Hammes Company Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Cost</td>
<td>$ 299,186,409</td>
<td>$ 275,799,736</td>
<td>$ 23,386,673</td>
</tr>
<tr>
<td>2.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Project Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Management Fee</td>
<td>$ 17,302,132</td>
<td>$ 8,770,432</td>
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<tr>
<td>Professional Services</td>
<td>$ 26,962,165</td>
<td>$ 19,942,606</td>
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<tr>
<td>Professional Services - Exec Team</td>
<td>$ 10,069,592</td>
<td>$ 9,367,841</td>
<td></td>
</tr>
<tr>
<td>FOD Administration Fee</td>
<td>$ 5,983,728</td>
<td>$ 5,510,495</td>
<td></td>
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<tr>
<td>Site Investigation Costs</td>
<td></td>
<td>$ 95,000</td>
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<tr>
<td>Other Soft Costs</td>
<td></td>
<td>$ 2,133,739</td>
<td></td>
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<tr>
<td>Other Project Costs</td>
<td></td>
<td>$ 533,002</td>
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<tr>
<td>Commissioning</td>
<td>$ 2,190,386</td>
<td>$ 857,400</td>
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<tr>
<td>General MP, Signage and Wayfinding</td>
<td>$ 1,154,598</td>
<td>$ 281,250</td>
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<tr>
<td>Exterior Signage (Allowance)</td>
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<td>$ 657,340</td>
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<tr>
<td>Interior Signage (Allowance)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fixtures, Furnishings and Equipment</td>
<td>$ 23,428,120</td>
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<tr>
<td>Medical Equipment</td>
<td></td>
<td>$ 70,278,226</td>
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<tr>
<td>Furniture and Furnishings</td>
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<td>$ 7,494,551</td>
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<tr>
<td>Minor Medical Equipment</td>
<td>$ 29,285,151</td>
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<tr>
<td>Major Medical Equipment</td>
<td></td>
<td>$ 7,321,288</td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td>$ 17,247,894</td>
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</tr>
<tr>
<td>Artwork</td>
<td>$ 1,000,000</td>
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<tr>
<td>Moving Cost</td>
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<tr>
<td>Construction Contingency</td>
<td>$ 23,934,913</td>
<td>$ 13,776,237</td>
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<tr>
<td>Project Contingency</td>
<td>$ 6,582,101</td>
<td>$ 6,061,544</td>
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<tr>
<td>Risk Contingency</td>
<td>$ 8,975,952</td>
<td>$ 8,266,742</td>
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<tr>
<td>Subtotal Other Project Costs</td>
<td>$ 164,135,766</td>
<td>$ 171,252,697</td>
<td>(7,116,931)</td>
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<tr>
<td>3.00</td>
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<td></td>
</tr>
<tr>
<td>Total Project Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$ 299,186,409</td>
<td>$ 275,799,736</td>
<td>$ 23,386,673</td>
</tr>
<tr>
<td>Cost Per Square Foot</td>
<td>$ 523.42</td>
<td>$ 482.50</td>
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<tr>
<td>Other Project Costs</td>
<td>$ 164,135,766</td>
<td>$ 171,252,697</td>
<td>(7,116,931)</td>
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<tr>
<td>Cost Per Square Foot</td>
<td>$ 287.15</td>
<td>$ 299.60</td>
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</tr>
<tr>
<td>Total</td>
<td>$ 463,322,698</td>
<td>$ 447,052,916</td>
<td>$ 16,269,783</td>
</tr>
<tr>
<td>Cost Per Square Foot</td>
<td>$ 810.57</td>
<td>$ 782.11</td>
<td></td>
</tr>
</tbody>
</table>

Table 15 provides a summary comparison of the two budgets. Specific items of interest include:

1. The variance on construction cost is approximately $23 million (the Hammes Company comparison estimate being lower). The comparison includes escalation costs. Jacobs has used an average of 6% annually to the midpoint of construction. Hammes Company has used an average of 9% annually to the midpoint of construction. The Hammes Company assumption is more conservative, which represents a national outlook and an assumption that the volatility in the materials markets will continue to be an issue. Furthermore, labor unions have been getting more aggressive in negotiation of contracts as there wage rates were fairly flat for previous years.

2. The assumptions relative to fee percentages for the construction manager and architect are conservative in the Jacobs budgets. Hammes Company has, based on feedback from various projects around the country, taken a more finite approach to these fees based on what they are currently being purchased for nationally. The combined variance on these two items is approximately $15 million.

3. The professional services fees for the Executive Team members and the University FOD group are a fixed percentage and included in both estimates.

4. There are several categories in the Other Project Costs group that may be blank in one column or the other. In those instances it was difficult to ascertain where those costs might fall within the current budget or whether or not they were included. In the analysis it appears that in most instances they are offset by potential “savings” in other categories. It appears that these costs (Other Project Costs) in the Jacobs budgets are more general in nature and it is also, according to Jacobs, where input from the Medical Center was used to supplement their (Jacobs) information.
5. This is most apparent in the Medical Equipment and technology categories. There is a variance of almost $25 million in the medical equipment budgets (Jacob being lower) and $9 million in technology related costs. The basis of assumptions is critical in these categories and the methodology used is significantly different. This would account for some of the variance and should require that over time a more detailed look at these requirements be undertaken to validate the budgets. Typically, the Owner can provide insight into these costs based on anticipated system components and requirements (through internal IT or capital equipment departments).

6. The final major variance is in the Construction Contingency. The Jacobs budgets include a 5% construction contingency on all other project costs (construction and other project costs). The Hammes Company estimate includes a 5% construction contingency on construction costs only. It should be noted that the equipment and technology budgets included in the Hammes Company budget do include a 5% contingency as well. This would offset some of the $10 million variance (approximately $5 million).

7. In total the comparison budget is approximately $16 million under the current Jacobs budget.

10th Avenue Parking Garage
Parking garages present a different series of issues when doing comparisons. Using square foot costs in a manner similar to the hospital expansion typically does not work. The layout and efficiency of the plan for a parking structure is critical to the determination of the square footage of the structure and the square footage per vehicle. A more common methodology is to use the total cost per vehicle as the barometer for evaluating the cost.

The three most important factors that impact the cost of a parking structure are:

1. The structural system (precast or poured in place) is an important element in the design. Typically precast construction is favored for cost concerns, but it is not always a system that can be used given site constraints and crane limitations. Poured structures are typically more expensive due to required forming systems and the timing involved relative to scheduling pours and allowing appropriate time to remove / relocate forms.

2. The floor plate of the structure is usually dictated by site constraints. Various designs can incorporate different traffic patterns (one-way or two-way) as well as parking configurations (angled parking or straight-in parking). Each of these has multiple pros and cons and needs to be evaluated by the project team.

3. The final factor is the aesthetic of the parking structure. Designs can range from very simple utilitarian structures to structures designed to blend in with adjacent architecture. There are significant premiums as the design becomes more complicated as the amount of skin typically impacts the structure as well as the foundations. The more enclosed the structure becomes the more likely that there will be a requirement for some type of mechanical exhaust system and / or fire protection system. Also, floors below grade (to minimize structure height or possibly balance the site) make a difference in the overall cost per vehicle as well.
### Table 16 – 10th Avenue Parking Garage

<table>
<thead>
<tr>
<th></th>
<th>Ohio State University Medical Center Budget</th>
<th>Hammer Company Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.00 Construction Cost</strong></td>
<td>$12,584,364</td>
<td>$11,436,772</td>
<td>$1,147,592</td>
</tr>
<tr>
<td><strong>2.00 Other Project Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Management Fee</td>
<td>$629,218</td>
<td>$437,428</td>
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<tr>
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<td>$665,573</td>
<td>$690,646</td>
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</tr>
<tr>
<td>Professional Services - Exec Team</td>
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<td>$363,577</td>
<td></td>
</tr>
<tr>
<td>FOD Administration Fee</td>
<td>$251,687</td>
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<tr>
<td>Site Investigation Costs</td>
<td></td>
<td>$65,000</td>
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</tr>
<tr>
<td>Other Soft Costs</td>
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<td>$359,854</td>
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</tr>
<tr>
<td>Other Project Costs</td>
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<td>Commissioning</td>
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</tr>
<tr>
<td>General MP, Signage and Wayfinding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Signage (Allowance)</td>
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<td>$115,200</td>
<td></td>
</tr>
<tr>
<td>Interior Signage (Allowance)</td>
<td></td>
<td>$102,000</td>
<td></td>
</tr>
<tr>
<td>Fixtures, Furnishings and Equipment</td>
<td></td>
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</tr>
<tr>
<td>Parking Equipment</td>
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<td>$80,000</td>
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<td>Security System</td>
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<td>$270,000</td>
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</tr>
<tr>
<td>Minor Medical Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major medical Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artwork</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Moving Cost</td>
<td></td>
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<tr>
<td>Construction Contingency</td>
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<td>Project Contingency</td>
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<td>Risk Contingency</td>
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<tr>
<td><strong>Subtotal Other Project Costs</strong></td>
<td>$3,608,020</td>
<td>$4,290,401</td>
<td>$(682,381)</td>
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<tr>
<td><strong>3.00 Total Project Cost</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$12,584,364</td>
<td>$11,436,772</td>
<td></td>
</tr>
<tr>
<td>Other Project Costs</td>
<td>$3,608,020</td>
<td>$4,290,401</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$16,192,384</td>
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<tr>
<td><strong>Cost per Car</strong></td>
<td>$26,987</td>
<td>$26,212</td>
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</tr>
</tbody>
</table>

The review of this project as reflected in Table 16 indicates a reasonably close difference in the two budgets. However, it should be noted that there are some discrepancies in some of the base assumptions. The key factors in the review and analysis are as follows:

1. The overall variance is approximately $465,000. However, that variance could be significantly different as there are a series of Other Project Costs that are either missing from the Jacobs budget or are included in the Construction Cost. If they are missing from the Jacobs budget the variance would be increased by approximately $500,000. If they are included in the construction budget the overall project budget variance remains about the same.

2. Items that typically fall under Owner costs (on Hammes Company projects) include signage, parking equipment and security systems. These costs do not appear as items in the Other Project Costs in the Jacobs budget so it assumed that they are included in the Construction Cost.

3. Similarly, there are other items included in the Hammes Company budget (Other Soft Costs, Other Project Costs and Site Investigation costs) that do not appear on the Jacobs budgets. Again, they may be included in the Construction Cost which has little impact on the overall variance. If they are not, that is another $500,000 differential.

4. It is not uncommon for parking structure projects to be competed by a design / build team. This allows for a fairly expeditious process for completion of the design and construction and helps to minimize fees and other expenses. The ability to use this methodology in a publicly funded project is questionable and would need to be explored. However, it could reduce the $1 million included for design and construction management fees substantially.

In total, the cost per vehicle for this structure is in the $26,000 range. That is substantially higher than what would be considered a typical parking structure (in the range of $17,000 to $20,000 per vehicle). The design
parameters as laid out in the documents indicate design elements/features that would be considered more upscale than the typical structure. A reduction to the more typical range would yield a potential savings of $3.6 million to $5.4 million. It is likely that a more upscale appearance could be achieved by other means than those included in the design while not costing as much. That becomes an aesthetic issue for the campus architect and staff as there are a significant number of structures already in place in the general vicinity and on the campus as a whole. A significant departure in style or aesthetics could be problematic.

The high cost per vehicle is the key element in this part of the review. The two budgets are fairly close and would not necessarily warrant investigation beyond that noted above (to make certain “missing” costs are included).

**West of Cannon Faculty Office Building**

The evaluation of office building type projects usually yields questions concerning buildout allowances or related costs. In this case, the specifics is more clear than a typical speculative office building and that is reflected in the relative close numbers on the Construction Cost. The base assumption in the Hammes Company budget is that the faculty office space will be pre-designed or standardized space which would not require significant customization for individual occupants. At the same time, some flexibility for accomplishing some customization is built into the Professional Services (architectural design fees) in the Hammes Company budget. That variable accounts for a $400,000 variance between the two budgets which is approximately half of the total project variance.

The other significant variable is the same as noted in the narrative for the 10th Avenue Parking Garage that being the Site Investigation, Other Soft Costs and Other Project Costs included in the Hammes Company budget. Included in the Site Investigation line item is the geotechnical work and a site survey. It also includes some specialty engineering for potential flood plain related issues (specialty foundation and underslab drainage design). These items account for approximately $330,000 of the variance.

The construction cost included in the Hammes Company and Jacobs budgets also includes some provisions for non-typical construction means to deal with flood plain practicalities. The Hammes Company budget includes an underslab drainage system as well as foundation and foundation wall protection. The building would be raised substantially above grade to have the lowest floor completely above the flood plain and based on some preliminary analysis the cost to raise the building would be substantially higher than the cost to protect the building via other means. However, at the very minimum, the critical electrical and systems equipment need to be kept a minimum of 3’-0” above the flood plain in accordance with campus standards.

Table 17 provides an overview of the comparison.
Table 17 – Faculty Office Building West of Cannon

<table>
<thead>
<tr>
<th>Item</th>
<th>Ohio State University Medical Center Budget</th>
<th>Hammes Company Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 Construction Cost</td>
<td>$12,136,592</td>
<td>$12,256,526</td>
<td>$(119,934)</td>
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<td>2.00 Other Project Costs</td>
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<tr>
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<tr>
<td>Construction Management Fee</td>
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<tr>
<td>Professional Services</td>
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<td>FOD Administration Fee</td>
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<tr>
<td>Site Investigation Costs</td>
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<tr>
<td>Other Soft Costs</td>
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<td>Other Project Costs</td>
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<tr>
<td>Exterior Signage (Allowance)</td>
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<tr>
<td>Interior Signage (Allowance)</td>
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<td>Furniture and Furnishings</td>
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<tr>
<td>Minor Medical Equipment</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Major Medical Equipment Technology</td>
<td>$606,830</td>
<td>$627,000</td>
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<tr>
<td>Moving Cost</td>
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<tr>
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<td>Risk Contingency</td>
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<tr>
<td>Subtotal Other Project Costs</td>
<td>$5,622,245</td>
<td>$6,442,876</td>
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<tr>
<td>3.00 Total Project Cost</td>
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</tr>
<tr>
<td>Construction</td>
<td>$12,136,592</td>
<td>$12,256,526</td>
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</tr>
<tr>
<td>Cost Per Square Foot</td>
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<td>$204.28</td>
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<tr>
<td>Other Project Costs</td>
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<td>Cost Per Square Foot</td>
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<td>Total</td>
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<tr>
<td>Cost Per Square Foot</td>
<td>$295.98</td>
<td>$311.66</td>
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</table>

Based on information provided, this project is currently on hold. With that stipulation, the project pricing / cost is subject to some potential fluctuation for escalation / inflation and other costs related to the timing of the commencement of construction (winter conditions costs).

Parking Structure West of Cannon

The analysis related to this project follows along the same lines as the 10th Avenue Parking Garage project. The costs are relatively close, but the overall cost per vehicle is still at the high end of the range for parking structures. Again, the recommendation would be to invest the time to evaluate the design criteria relative to the campus standards and to make any potential adjustment to reduce the overall project cost.

The most critical element of this project will be dealing with potential flood plain issues being that the structure is located West of Cannon. Parking structures are typically “open” construction to allow for enough open perimeter to eliminate the necessity for any kind of mechanical ventilation. As with the Faculty Office Building West of Cannon, the lowest level of this structure will be below the flood plain. With the open design that will make it susceptible to flooding.

This is important from the standpoint that typically electrical distribution equipment for parking structures is placed in the lower level and service transformers are located on grade. That may not be practical at this location and, therefore, special requirements will be necessary to accommodate bringing that equipment above the flood plain elevation. The other alternative would be to enclose the lowest level and provide mechanical ventilation. However, the premium for accomplishing this may be somewhat cost prohibitive as the structure would have to be designed to withstand hydraulic pressures imposed by flooding in the event that there would be a flood.

Table 18 provides a comparison of the two budgets. As noted on the 10th Avenue Parking Garage, one of the key elements is the inclusion of systems that Hammes Company typically includes as Owner costs (security, signage,
parking equipment, etc.). It is viewed as an important discrepancy from the perspective of making sure that all necessary project components are included in the current budgets. If included in the Construction Cost it skews the variance in those numbers. If not these items should be discussed and the budgets adjusted appropriately.

Table 18 – Parking Structure West of Cannon

<table>
<thead>
<tr>
<th></th>
<th>Ohio State University Medical Center Budget</th>
<th>Hammes Company Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.00</strong> Construction Cost</td>
<td>$11,464,006</td>
<td>$10,851,788</td>
<td>$612,218</td>
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<tr>
<td><strong>2.00</strong> Other Project Costs</td>
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<tr>
<td>Construction Management Fee</td>
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<td>FOD Administration Fee</td>
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<td>Site Investigation Costs</td>
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<tr>
<td>Other Soft Costs</td>
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<td>Other Project Costs</td>
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<tr>
<td>Commissioning</td>
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<tr>
<td>General MP, Signage and Wayfinding</td>
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<tr>
<td>Exterior Signage (Allowance)</td>
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<td>Parking Equipment</td>
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<td>Security System</td>
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<td>Minor Medical Equipment</td>
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<tr>
<td>Major medical Equipment</td>
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<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artwork</td>
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<tr>
<td>Moving Cost</td>
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<tr>
<td>Risk Contingency</td>
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<tr>
<td><strong>Subtotal Other Project Costs</strong></td>
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<td>($948,237)</td>
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<tr>
<td><strong>3.00</strong> Total Project Cost</td>
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</tr>
<tr>
<td>Construction</td>
<td>$11,464,006</td>
<td>$10,851,788</td>
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</tr>
<tr>
<td>Other Project Costs</td>
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</tr>
<tr>
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<tr>
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<td>$25,145</td>
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</tr>
</tbody>
</table>

As with the Faculty Office Building West of Cannon, this project is noted as being on hold. The costs could increase with the delay in schedule but cannot be accurately quantified at this time. The cost exposure would be to escalation / inflation and timing of construction (winter conditions).

**Rhodes, Doan, James Cramblett Renovation**

Renovation work is typically one of the most difficult areas to analyze and budget. In addition to the significant unknowns related to renovation work there is some difficulty in determining the exact scope. The documentation provided gives a relatively clear definition of the work to be completed. It establishes categories for the renovation work that are fairly standard within the industry (cosmetic, medium level or major) and applies that specific level of work to areas identified on the preliminary layout drawings. This is a reasonable methodology and also fairly typical within the industry particularly at this level of development.

It should be noted that renovation work is susceptible to significant potential swings in cost. Assumptions are made concerning how some elements of the building are constructed and what might be enclosed within existing walls and partitions. Furthermore, the conditions of some of the “hidden” construction may differ from what is anticipated or from what is assumed. Finally, the probability that there are hazardous materials incorporated within the construction is reasonably high given the age of the structures being renovated. Typically the extent of the use of these materials and the methodology for removal and handling make it difficult to assess the cost until such time as the material is actually uncovered and tested. All of these variables require that contingencies be established that are adequate for some of the unknown conditions.
In reviewing the budget for this work, there was a 13% variance in the estimated construction costs between the Jacobs and Hammes Company budgets. In reviewing the documentation, it was obvious that there could be some room for interpretation. However, the more likely rationale for the variance is a difference in the unit pricing.

Unit pricing for renovation is difficult to compare as every firm has a different interpretation of what the requirements are for working in existing and possibly occupied space. This impacts assumptions relative to general conditions costs (site management, dust control, air quality issues, etc.) and project schedule (phasing). The ranges of costs used for the Jacobs estimate are higher than those typically identified for this work. At the same time a conservative approach to this type of work is recommended. In addition, this pricing may reflect some built-in “contingency” as the base contingencies included in the budget are typically lower than those Hammes Company would recommend for this type of work. The budgets include a construction contingency in the 7% to 8% (of construction cost) range. In most cases a 10% contingency is recommended as a minimum. If work is managed appropriately, these contingencies can be adjusted / reduced as work progresses and risks are reduced by the quantity of work completed.

One significant variance between the budgets is the inclusion of technology costs. Hammes Company has included an allowance for technology costs ($2.6 million) in the renovated area. The assumption here is that this is typically an owner cost outside the construction and the degree or category of renovation in many areas would likely require an upgrade / update to existing technology in either infrastructure or equipment. Some budget capacity should be provided for this work.

Table 19 provides an overview of the two budgets and the variances between the numbers. The overall difference in the total numbers is skewed somewhat by the technology related issue. If that is removed from the equation the actual difference between the budgets is approximately $5.3 million.

<table>
<thead>
<tr>
<th>Table 19 – Rhodes, Doan, James, Cramblett Renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio State University Medical Center Budget</td>
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<td>1.00 Construction Cost</td>
</tr>
<tr>
<td>2.00 Other Project Costs</td>
</tr>
<tr>
<td>Construction Management Fee</td>
</tr>
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<td>Professional Services</td>
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<td>Professional Services - Exec Team</td>
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<tr>
<td>FGD Administration Fee</td>
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<tr>
<td>Site Investigation Costs</td>
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<td>Other Soft Costs</td>
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<tr>
<td>Other Project Costs</td>
</tr>
<tr>
<td>Commissioning</td>
</tr>
<tr>
<td>General MP, Signage and Wayfinding</td>
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<tr>
<td>Exterior Signage (Allowance)</td>
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<td>Interior Signage (Allowance)</td>
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<tr>
<td>Furniture and Furnishings</td>
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<td>Minor Medical Equipment</td>
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<tr>
<td>Major Medical Equipment</td>
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<tr>
<td>Technology</td>
</tr>
<tr>
<td>Artwork</td>
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<td>Moving Cost</td>
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<td>Construction Contingency</td>
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<td>Project Contingency</td>
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<td>Risk Contingency</td>
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<tr>
<td>Subtotal Other Project Costs</td>
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<td>3.00 Total Project Cost</td>
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<td>Construction</td>
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<td>Cost Per Square Foot</td>
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<td>Other Project Costs</td>
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<td>Total</td>
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<td>Cost Per Square Foot</td>
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### Spirit of Women’s Park – Playfields

The final area of the more detailed budget comparison focused on the additional parking being developed under the title of “Spirit of Women’s Park – Playfields.” This work consists of the creation of a six hundred space surface parking lot resulting in the location of current playfields and the replacement of those playfields on the West Campus. In addition, the Spirit of Women’s Park, which is currently located in the footprint of the new 10th Avenue Parking Garage, will be relocated as part of the Campus Master Plan.

This project represents less than one half of one percent of the total project budget. It does, however, further emphasize one of the concerns identified with previous parking related costs. The major variable in the budgets is the inclusion of parking equipment, signage, security and other related project costs. In this case these items which are included in the Hammes Company budget would be comparable to a 12% increase in the Jacobs budget. While the dollars may not be significant in the overall total, the variance for these items in the overall budget for parking related projects is more than $3.5 million when run through the string of fees and contingencies.

In general the project cost is within parameters for this type of work and the variance between the budgets on the overall number is acceptable.

Table 20 provides the same overview as shown for the above mentioned projects.

<table>
<thead>
<tr>
<th>Table 20 – Spirit of Women’s Park - Playfields</th>
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There are two major components of the budget that were not analyzed as the previous “projects.” The Infrastructure / Roadways and the Rhodes, Doan, James MEP / Life Safety Upgrades projects were not analyzed in the manner as the projects above. The nature of these projects and the information available at this time make a similar analysis difficult to perform and validate. At the same time, it appears that there has been a good deal of research and analysis for existing systems and infrastructure to determine the condition of these systems and evaluate options for moving forward. In aggregate they represent a significant budget element. The Infrastructure
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/ Roadways project is budgeted at $41 million or 5% of the total Implementation Plan budget. The Rhodes, Doan, James MEP / Life Safety Upgrades are currently budgeted at $99 million or 13% of the overall Implementation Plan budget.

Infrastructure / Roadways

The Infrastructure / Roadways has been subject of significant discussion and research. A conceptual plan has been developed that provides a reasonable detail for the scope of the work. However, it appears that the planning for this work is not nearly as far along as it needs to be to develop a more detailed budget with fewer allowances. Based on the comprehensiveness of the scope, this work will be completed in phases. However, there will be several phases that will come early in the overall project schedule since they are essentially “enabling” projects (requiring completion prior to other projects moving forward). In essence there are some elements of this scope that need to be completed to allow other work to proceed. That work would be required to free up sites or to provide infrastructure services to new construction consistent with the schedule of the new construction. Future phases would then be undertaken after the other projects have been completed (freeing up those portions of the site).

Many of the documents reviewed by Hammes Company provided a detailed record of existing infrastructure locations and conditions. They provided less detail (more conceptual) on the work required to accomplish the final scope which leads to the inclusion of numerous allowances in the budget. Allowances are not unusual in developing conceptual budgets but they also represent a risk to the Owner. While these risks are somewhat manageable, the fact that they are allowances leaves room for costs to be determined in the future at which time any overages would be funded via contingencies. When there are a significant number of allowances and they represent a major portion of the budget, the likelihood that the contingency can be diluted early in the design / construction process can be problematic.

In reviewing the Jacobs budget information unit pricing was evaluated based on typical costs for the work identified. In general, the unit pricing used is consistent with the averages seen for comparable work. Again, being a conceptual budget that will tend to be conservative but that should be expected at this time. As allowances are removed and converted to firm numbers there could be some reduction in contingency percentages to reflect the satisfaction of the risk factors for those specific items. At the same time, the contingencies are not excessive and, therefore, the assumption could be made that the allowances are conservative enough to accommodate any potential shortfalls. This is not unusual, but it is a risk.

In aggregate, the budget for the work as understood from the available documentation appears to be reasonable. However, until final designs are completed the actual routing of underground work and other related items makes it difficult to ascertain if the budgets will remain reasonable.

Better definition of the scope of this work is essential to a validation of the budget. The construction proceeding in phases provides opportunities to make reviews and potential adjustments as the work progresses, but starting with a reasonable and accurate (scope based) budget would be essential to a positive outcome. The further design of this work should be given a priority. In addition, it may be beneficial to have a contractor participate as a “consultant” to assist in some of the pricing and analysis of solutions. There is a cost associated with this, but it may prove to be a value-added type of situation where the benefits will outweigh the costs.

The completion of this work is also going to require careful coordination with all other projects and with all other affected facilities. There should be a detailed work plan and scope in place so all parties can sign-off on the process and schedule. It will be critical that this work proceed with all parties meeting on a regular basis to update the schedule and discuss potential conflicts and the impact on schedules.
Rhodes, Doan, James MEP / Life Safety Upgrades

Based on the documentation provided and the discussions with project team members, this project has the least definition at this time. However, the lack of definition does not necessarily represent the greatest risk at this point.

The purpose of this project is to quantify the scope and costs related to upgrading existing facilities / systems in Rhodes Hall, Doan Hall, Cramblett Hall and the James Cancer Center to improve or meet facility life expectancy. As described in the Progress Report issued by the Executive Team, “These new systems will be expected to return performance of building systems to the level assumed by the normal degradation curve for their continued use.” As the Master Facilities Plan requires the use / reuse of these facilities, the upgrading of the Mechanical, Electrical and Plumbing (MEP) systems has been deemed essential to allow that to happen.

Similar to the project for the renovation of these buildings, there is a certain amount of unidentifiable work related to any undertaking of this nature. Documentation provided indicates that a detailed evaluation of the existing MEP system components and equipment has been completed and evaluations of the conditions and life expectancy of those systems have been made. Typically, when such an evaluation is made it is expected that an assessment of the replacement or upgrade costs can be made. The risks associated with those assumptions usually center around the ability to access the equipment, remove the existing equipment, maneuver new equipment into the facility and similar issues. The actual cost of the new equipment is something that can be easily identified from vendors and consultants.

The second area of risk is the identification and assessment of downstream impacts. New equipment can have different operating parameters and require different power or other source (water, air, etc.) facilities. These may not coincide with existing feeds or with existing facility capacities. These types of issues should be sorted out in the equipment selection process. However, in instances where they have not been resolved and work proceeds adequate contingencies are required for the correction of these types of situations.

The final area of risk that should be pointed out is similar to the aforementioned renovation work. There are always a certain level of “unknowns” that make up renovation type work. They simply cannot be identified or quantified until such time as they are exposed. With the magnitude of these items being potentially and significantly larger in cost than typical remodeling work it is essential to manage the process on both a current and forecasted basis to ensure timely identification and resolution of these issues.

In reviewing the budget, there is a combined total of approximately 13% in contingencies. This should be adequate to cover the risk associated with these items. However, the contingency should be monitored continually as the work progresses to make certain that it does not drop below a percentage that reflects the magnitude of the work to be completed and the potential risks associated with that work. An early extensive use of contingency can be managed if there is a lower risk associated with the work to be completed. An early extensive use of contingency with higher risk work to follow could be problematic.

Conclusion

A final note related to the total budget is the impact of schedule and escalation. With portions of the work extending four plus years into the future, market conditions need to be monitored carefully to determine if the escalation percentage used for developing the budgets remains adequate. Escalation can go either way and can be very volatile. Pricing on some construction products, if graphed, would generate a saw tooth type chart. It has become increasingly difficult to predict what products or materials will experience significant variances in cost and the duration of that volatility. Regular evaluations of the market conditions would provide a certain level of comfort in understanding the adequacy of budgets for ongoing projects but more so for projects that will not commence until later in Phase I and have extended schedules. This would be very true of the renovation work and the MEP / Life Safety upgrades. A major concern would be with the cost of major equipment (air handling
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units, boilers, chillers, etc.). Escalation and advancements in technology could have an impact on the design and scope parameters. This would also be true of the requirements for medical equipment and systems as well as technology. The advancements in these markets is difficult to track and can present issues for the construction team as the requirements for pieces of equipment can be in flux until such time as a purchase is made and technical information can be obtained.

In conclusion, the aggregate amount of the budgets for the remaining projects appears to be within the expected parameters. While being somewhat conservative they are an adequate reflection of the current status of design and development of information. Potential issues that could impact to these budgets and affect this statement will be addressed elsewhere in this Report.

Risk Factors

Two of the most critical items in the design and planning of construction projects are time and cost. They are obviously interconnected but are also impacted by numerous outside influences. A project of this magnitude presents even greater issues by the length of the schedule and the current conditions in construction materials markets.

In reviewing the documentation provided and discussing issues with various stakeholders in the project, numerous areas of concern were identified. These concerns were evaluated to determine the risks associated with them and then grouped to provide a more concise categorization of risk factors.

All construction projects involve a certain degree of risk outside those associated with the strategic goals and planning assumptions for that project. These risks range from unknown conditions to market volatility to financial solvency of contractors. Identifying, understanding and quantifying those risks early in the process allows the Owner to mitigate them to a certain degree by establishing appropriate contingencies or seeking outside counsel (second opinion, peer reviews) to assist in that process.

It should be noted that for the purpose of this analysis, the issue of achieving consensus among the various parties involved from the University perspective is not identified as a risk as part of the budget evaluation. There are obvious and serious issues related to the consensus concern that impact schedule and, therefore, cost. It should also be noted that this consensus should extend beyond the stakeholders in the “ownership” of the project but also in the management of the construction (FOD and Medical Center staffs).

In reviewing risk factors associated with the design and construction of these projects the following items were identified:

Implementation Risk

The implementation of the Phase I Master Facility Plan represents a series of projects of a magnitude that is not typical in the construction industry. With a total budget estimated to be $780 million, there are inherent risks associated with the planning, scheduling and delivery of the project. While not significantly different from the risks associated with smaller or less complex projects, the impact of issues encountered in the execution of the plan can have a far reaching effect on the delivery of the overall project. The execution of this plan requires a careful coordination of activities and multiple contractors to ensure that numerous project elements tie together to maintain the schedule.

The interconnectivity of the scheduling can have a significant impact on the bottom line for the project. A delay on a schedule for a critical element could impact the schedules related to other projects. In essence there is a domino effect should one of the critical elements be delayed.
Of equal importance is the fact that the schedules need to be realistic and achievable. While this issue is addressed specifically elsewhere in this Report, it should be noted that an unobtainable assumption relative to schedule has multiple impacts and most of them cost money if projects are delayed. The construction cost is one item impacted by a delay. The revenue projections for the projects are a second item that could suffer from scheduling delays. A late delivery of a project means it will delay the initiation of revenue streams on which some of the financial projections are based.

Monitoring the schedule will be an important element in the implementation process. However, making sure the schedule is right before starting projects is even more important. If a schedule is not achievable, forcing contractors to make it achievable only costs money and creates duress in the relationships that are key to project success. As contractors are hired for the individual projects it will be important to have them participate in the review and detailing of schedules for their respective projects but it will also be important to have regular meetings with the design and construction firms working on all of the projects to review and update schedules and to discuss issues that impact some or all parties.

Implementation risks, however, are not limited to schedule. The magnitude of some of the projects within the Phase I Master Plan is of the size and complexity where there might be a limited number of prime contractors that can complete the work. Timing of projects to market is critical in regard to the availability of contractors and labor. Other large projects in the market can impact the number and type of firms available as well as the bidding environment. The Columbus Children’s Hospital has announced plans for a seven-year $740 million master site plan that includes:

- A 500,000 square-foot new main hospital building that will increase inpatient capacity to 400 beds, expand the Emergency Department and Pediatric Trauma Center and enhance family support services
- 150,000 square foot research building
- A three-story facility to house Gastroenterology services, Psychology and Clinical Sciences (diagnostics and clinical studies)
- A 1,500-space parking garage
- Renovation of existing inpatient facilities to expand academic faculty offices and educational space
- Enhanced ‘green space’ around the existing Columbus Recreation and Parks’ Livingston Park

The impact of a significant “glut” of work in the market place provides individual contractors and subcontractors with an optimal situation where they can pick and choose work. However, the projects that get to market first are going to get the benefit of the most participation and, therefore, the most competitive pricing from contractors and subcontractors. Once a “saturated” market starts to sort itself out, the contractors who managed to obtain the work on the first projects will price future projects (that coincide with schedules) at a higher price as they will be less inclined to take the work if they know they cannot provide the manpower or expertise should they be awarded the work. In the off-hand instance where they get the work, they will have priced it in a manner that they will be able to obtain the expertise and possibly subcontract the manpower to deliver on the work. The more capable and qualified firms will be in that type of position as more projects come onto the market. The less qualified firms will then become the more competitive bidders as subsequent projects are brought to the market for bidding.

The impact of this cannot be underestimated in that in many cases, large complicated projects with significant schedule durations are extremely attractive to contractors and subcontractors. The ability to book business for as much as 24 months out is a significant benefit to them. They operate at much leaner margins and the knowledge that they have a portion of their “book of business” covered for that duration makes their decision making relative to additional projects that come along in that same time frame one where they can try to maximize their profits and enhance their market position. That gives them the luxury of being selective about bidding other work and also allows them to price that work a little less competitively as they are not in dire need of the work.
This situation also puts more second tier contractors in line for larger projects that they might not normally pursue or be considered for. The risks inherent with this happening are in the capability of the firm to meet schedules, a shortage of manpower and expertise, and financial concerns relative to cash flow and the ability to carry a project for the required period. An ancillary issue could also be the bonding capacity of the contractors.

Management of proposed changes is also a critical element in the construction process. Inevitably, there will be a need for changes that are requested (owner option) or necessitated (existing / unforeseen conditions). With multiple projects running concurrently and multiple ownership entities as stakeholders, it is likely that there will be competing interests for additional funding. Timely responses on proposed changes (either requested or necessitated) are important. However, it is as much a design and construction responsibility as it is a University responsibility. A detailed and manageable change order process needs to be established and incorporated across the board for all projects. A decision making process for the University needs to be established that provides differing levels of authority and responsibility for the review of changes and, where appropriate, approval of changes. This process should involve a minimal number of people and a clear and concise decision making tree.

Invariably, the construction process “requires” an immediate response to changes. That response should never be made in a vacuum. If an immediate response is required, the request needs to be submitted with all appropriate detail (pricing, design and schedule impacts). That needs to be spelled out in the process.

The process also must establish a protocol for initiation of Owner requested changes. Specific individuals need to be identified and be the conduit for the submission of any proposed changes. These individuals would be responsible for screening requests and responding to them prior to submitting them for design input and pricing. (The design involved with changes costs money and needs to be factored into the overall cost for the change as well as any other related soft costs or equipment / technology costs.) This will require the staffs at the various entities to communicate and coordinate efforts on a regular basis. A preliminary process has been developed as part of the Executive Team process but there has not been a sign-off by the entire team at the time this was discussed. The entire team needs to “buy-in” and the process should be documented (including an organizational chart of decision makers or individuals who can initiate changes).

Finally, any construction project presents issues relative to safety on the site. With multiple projects on multiple sites with multiple contractors, there is the potential for differing levels of safety and security on the sites. It will be important for the University and the Medical Center to make sure a standard of care is implemented for all projects so that the basic rules for safety and security (including protection of the public) are maintained across the entire spectrum of projects. It will also provide a base line for contractors and subcontractors who might be working on multiple sites simultaneously. Developing, managing and monitoring that process will be important and should also be a subject for the discussions / meetings with the contractors from all projects.

**Escalation Risk**

The volatility in construction materials costs has been well documented and difficult to predict over the past several years. After a long period of time where prices and labor rates remained fairly stable and predictable, prices and labor rates have increased dramatically. There are numerous causes for this, but more importantly, there does not appear to be any immediate sign of a return to the stability of the recent past. Many of the organizations that track material pricing (AGC, ENR, R.S. Means) regularly display price tracking charts that represent a saw tooth pattern where prices spike then recede only to spike again. In recent months the spikes are higher and the returns are not as deep which indicates that even a return to stability in the future will not indicate a return to prior pricing.

Almost every major construction firm has people researching cost trends and they will have well supported positions relative to what they think the escalation factor will be for a given project. In this case, a 6% escalation factor is being used as an average for the duration of the project. This is based on what many of the research
firms feel will be a stabilization of the materials costs in the next 12 to 24 months. This is not guaranteed and is susceptible to change based on factors ranging from world events and production / infrastructure capabilities to material shortages and labor relations.

There are no guarantees relative to material costs. Labor costs are much easier to track but they are still subject to change. Similar to the materials issues, there had been a fairly long period of relatively flat changes in labor rates. That also has been changing as labor contracts expire and new higher rates are negotiated. Typically these contracts are for extended periods and so the labor rates can be projected as part of the overall escalation picture. Typically labor is projected to be 40% to 50% of the cost of construction. Being able to manage this portion of the cost is helpful but does not eliminate the risk inherent with projecting escalation.

Again, the magnitude of the Phase I projects comes into play as some of them will have schedules that extend 2 to 3 years. Trying to manage the buy-out process to ensure minimal exposure to risk will require the development of strategies to not only mitigate but manage the situation. At the very minimum the escalation costs should be identified and managed by the University (FOD). In aggregate there could be as much as $45 million allocated to escalation for the various projects based on schedules and the 6% allocation. That represents almost 10% of the cost of the work not yet under construction. A well managed process and reasonable market conditions could allow some of these funds to be recaptured.

Table 10 below identifies the estimated amount and the related percentage of the construction cost allocated for escalation.

### Allowances and Contingencies

As the design of the various projects included in the Phase I Master Plan nears completion of Schematic Design, the level of detail for some of the projects is not complete enough to allow for more detailed pricing other than the use of “rule of thumb” or square foot database type estimating. This methodology uses database type numbers for the calculation of unit price costs which are applied to appropriate segments of the design. Most contractors have different systems or formats that are used to create these estimates but for the most part they are a combination of square foot take-offs and applied unit pricing. Detailed program information assists with the development of pricing for interior buildout work.

Where there is a lack of definition relative to scope or design intent, allowances are used to create place-holders for specific items. In most cases allowances are conservative estimates based on limited information. In other cases, they are based on assumptions made by the contractor relative to existing conditions or interactions between new and existing construction. While it is not unusual to have allowances in budgets, particularly at this stage of development, the specifics of those allowances need to be detailed so that all parties are aware of what they cover and the basis of the estimate. If there is a disconnect between design and construction relative to what the allowance is intended to cover, there will be a further disconnect as the design is completed. The result is an allowance that is not adequate for the work as finally designed which will then require use of contingency dollars to absorb the impact of that adjustment.

As noted previously in this Report, one of the areas of concern is the Infrastructure / Roadways project which has a substantial number of allowances. The scope of that work needs additional and timely development so the scope of work covered by these allowances can be further defined and the allowance can be adjusted appropriately.

At the point in time where the budgets required as part of the Executive Team work are completed (at completion of the Schematic Design) all allowances should be specifically identified and described in narrative form to allow for a clear transition to the construction team for each project. It will also afford the University the opportunity to track them against pricing as the project moves through the Design Development phase. The intent should be that
at the completion of the Design Development phase there is enough information to eliminate most, if not all, allowance in the estimates.

Contingencies are a method of risk mitigation that allows the Owner to maintain and control funds for unforeseen issues that may arise during the design and construction of the project. In many cases contingencies are established at a higher percentage early in the development of project design. As the design becomes better defined and estimates can be more accurate, the need for some of the contingencies is mitigated to a degree. The level of contingency an Owner will carry for a project is dependent on the amount of risk they are willing to take and the type of contracts that are intended to be put in place with the design and construction teams. Some of the risks can be passed along via contracts such as “CM at Risk” and “Guaranteed Maximum Price” contracts. However, even under those scenarios some of the risk is passed along to others and likewise they will factor a cost for mitigation of that risk into their pricing.

Nonetheless, risk mitigation via contingencies is an acceptable process. The contingencies need to be managed and controlled so that they are used appropriately and are not used for scope or other changes without review and input from the appropriate individuals at the university responsible for budgets and decisions of that nature. There is always the possibility of more than one person or entity requesting a change under the assumption that they are the only change in process. If that is the case there can be multiple items all vying for the same dollars. A strategy for the management and use of contingency dollars needs to be put in place by the University and should be strictly adhered to.

Table 21 indicates the total dollars committed to contingencies and escalation for the various Phase I projects not yet under construction. The current budgets include $63 million (13.2%) in contingency dollars and $46 million (9.62%) in escalation allowances. This is skewed slightly by the fact that the escalation dollars are embedded in the construction costs, and it was not possible to separate those costs within an acceptable tolerance for accuracy. It does, however, provide an ability to analyze and separate actual hard construction numbers from softer numbers such as escalation and contingency. The expenditure of some of these dollars should be expected. At the same time, if the projects are designed and bid with minimal errors and or omissions and the market conditions stabilize, a portion of these costs could be recouped by the University.

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<th>Table 21 – Risk Analysis</th>
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<td><strong>Combined Budgets</strong></td>
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<td>1.00 Construction Cost</td>
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<td>2.00 Contingencies</td>
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<tr>
<td>Construction Contingency</td>
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<td>Project Contingency</td>
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<td>Risk Contingency</td>
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<tr>
<td>Subtotal</td>
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<tr>
<td>3.00 Escalation</td>
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<tr>
<td>4.00 Total</td>
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With approximately $108 million in project funds unallocated (contingencies and escalation), management of these funds is critical to understanding the current status of the project and an invaluable asset in decision making for the university.
Project Team

A final area of risk that should be mentioned is the need to assemble a qualified and manageable project team and a project management structure that can achieve success. As noted previously, there is a need for a management process that spans all projects as an umbrella over each individual project. At the time the interviews were conducted there was some concern expressed by various parties about how the Executive Team is currently configured and the roles and level of involvement of several parties. Without observing the interactions and processes over an extended period of time it is difficult to assess where there might be gaps or breakdowns in the process. Nonetheless, it is important that any disagreements be identified and resolved prior to moving forward with the execution of the Phase I Master Plan.

It is not the intent of this Report to identify a process or to overstate the issues that may exist. However, it became apparent that there is some discord among the parties responsible for managing the process on a daily basis, and this will eventually lead to issues on a more global basis.

Schedule

As part of the document review, Hammes Company was provided with a Master Project Schedule that outlined, in detail, the pre-construction activities (design and bidding) and also provided a somewhat less detailed construction schedule. In addition, each of the individual projects had a baseline schedule that was a derivative of the Master Schedule. In reviewing schedules at this stage of development there are several key factors that should be taken into consideration.

1. It is important to understand the design process being used so the durations of the various phases can be better understood. If there is significant user input into the design process, the duration of the Schematic Design and Design Development phases of the project will tend to extend longer. If there is limited user input, this process can be streamlined at the risk of some user dissatisfaction in the future. For this analysis, benchmark durations for projects of similar size were used for the comparison for both the Schematic Design and Design Development phases. An assumption was made that this process would follow a more typical or traditional user group input schedule.

2. The level of documentation for each of the design phases is also important. Different design firms have different definitions of what is included in a full Schematic Design and Design Development package. In addition, the Construction Manager may also have different expectations as to what will be provided to them at the completion of each phase. Since all projects are somewhat different and all design firms have different definitions of the requirements, it is impossible to be 100% accurate with an evaluation, but the differences are not so significant that a practical evaluation cannot be made.

3. The use of a “fast track” methodology will impact the timing of the production of construction documents. In a straight design-bid-build scenario the construction documents in their entirety are produced upon completion of the Design Development documents. In the “fast track” process, the construction documents are started earlier to allow for early bid packages to be produced to get an early start on construction and to order long lead time and critical path materials (structural steel, precast concrete panels, etc.). The construction documents for the footings and foundations as well as the structure can be produced shortly after Schematic Design is completed and the building footprint becomes fixed. This methodology allows for some significant time savings although it does have some potential for additional risk if there is a change to the documents. The “fast track” process is anticipated to be used for the Cancer / Clinical projects and the schedules provided take this into consideration. In reviewing construction durations, the start to finish time is the key element (not how much before the completion of the design the construction starts). Again, benchmarks from similar projects were used in the evaluation.
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4. When State and/or Federal funds are used for a project there are typically different bidding requirements. This usually involves time periods for advertisement for bids, bidding, qualification and selection. There is usually a somewhat lengthy process for the negotiation of contracts as well. Because this varies from state to state, Hammes Company did complete some research to identify approximate time frames and expectations for the process that is used in Ohio. These time frames were used in the evaluation. In addition, the University Facilities Operations and Development group provided a detailed analysis of the process including the University approval process.

5. The final factor in reviewing the construction durations for a project is the start date and the local climate. In climates where winters can be severe, there can be some impact on the schedule both for the footing and foundation work and for the enclosure of the building. There can also be some exposure for additional cost for winter conditions for various phases of the projects.

Benchmark Analysis

In reviewing the schedules, each project was viewed separately. Where there were critical tie-ins to other projects, those links were checked to make sure they were valid. The review, as noted focused on durations of specific events or phases to make sure they were adequate or within benchmarks for similar projects. Subsequently, the schedules were reviewed to determine the current status of each project relative to the schedule.

The basic time frames will be addressed first:

1. Schematic Design was not reviewed as that process has been underway for a period of time and the duration is no longer relevant. The Schematic Design approval date used in the summary schedules is used as the date for the commencement of the next phase (Design Development).

2. Design Development durations were reviewed using the Schematic Design Approval date as the starting date and the Design Development Submittal date as the completion date. Table 14 provides an analysis of those time frames. Based on benchmark comparisons, specific comments are as follows:

   - The durations allowed for the Cancer and Clinical projects are assumed to be on the same track and, therefore, the date is essentially a combined date or time frame. The duration used was 197 days. The comparable benchmark is 160 days. The comparison time frame is based on healthcare projects of similar size (square footage). The 197 days appears to be somewhat generous but not excessive.

   - The Design Development durations for the Parking Structure projects used on the Executive Team documentation are significantly different for structures that are approximately the same size (number of vehicles). The 10th Avenue structure has a Design Development duration of 141 days and the West of Cannon structure has a duration of 82 days. Benchmark comparisons were both 75 days. Again, this was based on an assumption that the projects are basically the same size.

   - The Faculty Office Building West of Cannon is scheduled for a 97 day Design Development period. The comparison for a similar building was 75 days. It should be noted that the comparison projects were a combination of Medical office Buildings. Typically, Medical Office Buildings will have shorter Design phases as the interior buildouts are developed later (as tenants sign leases). The Faculty Office Building would likely be fully developed and, therefore, the Design Development process could take slightly longer.

   - The durations for the Renovation / Upgrade projects are more difficult to compare since the scope of work for any project of this nature can be significantly different. Given that these time lines are relatively close it would be difficult to assume that the proposed durations would not be acceptable.
The same comment would apply to the Infrastructure / Roadways project. In addition, benchmark comparisons are difficult but typically do not run through a Design Development process. These documents go from a fairly schematic phase to a more detailed phase approaching construction documents in a fairly rapid manner as the construction document details is the key element.

Table 22 provides a global comparison of the time frames and variances noted above. It should be noted that the dates referenced are taken from schedules developed in February 2007 and may no longer be valid due to the current review process and other actual or potential delays noted in this Report.

<table>
<thead>
<tr>
<th>Remaining Master Facility Projects</th>
<th>Design Development</th>
<th>Construction Documents</th>
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<tbody>
<tr>
<td>Cancer Hospital</td>
<td>197 days</td>
<td>Fast Track</td>
</tr>
<tr>
<td>Clinical Expansion</td>
<td>197 days</td>
<td>Fast Track</td>
</tr>
<tr>
<td>10th Avenue Parking Garage</td>
<td>141 days</td>
<td>80 days</td>
</tr>
<tr>
<td>West of Cannon Faculty Office Building</td>
<td>97 days</td>
<td>124 days</td>
</tr>
<tr>
<td>West of Cannon Parking Structure</td>
<td>82 days</td>
<td>65 days</td>
</tr>
<tr>
<td>Infrastructure / Roadways</td>
<td>74 days</td>
<td>35 days</td>
</tr>
<tr>
<td>Rhodes, Doan, James MEP / Life Safety Upgrades</td>
<td>96 days Note 5</td>
<td>155 days</td>
</tr>
<tr>
<td>Rhodes, Doan, James, Cramblett Renovation</td>
<td>84 days</td>
<td>115 days</td>
</tr>
<tr>
<td>Other (Playfields)</td>
<td>36 days</td>
<td>36 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes and Clarifications:

1. The time frame identified for Design Development is based on scheduled date of approval of Schematic Design
2. The time frame identified for Construction Documents is based on scheduled date of approval of Design Development
3. The time frame for Construction Documents for the Clinical / Cancer project is not provided as “fast track” considerations will produce documents in separate packages. The analysis is based on an overall project schedule but is skewed by the fact that all documents are not being produced at the same time.
4. The time frames for the Cancer and Clinical projects are simultaneous and a single duration for both projects are on the assumption that the design can be completed in the same time frame.
5. The “benchmark” comparison for the infrastructure / Roadways work assumes that these are technical drawings and there would be not Design Development drawings in the traditional sense.

The two areas that appear to differ significantly from benchmarks would be the Design Development phase for the Cancer / Clinical project (37 days longer than the benchmark) and the 10th Avenue Parking Garage (51 days longer than the benchmark). In the case of the Cancer / Clinical project this may be a moot point as the “fast track” process typically short circuits the Design Development completion. However, as the schedules are designed and there is a specific date and time frame for approval of the Design Development documents (by the University), there is a question relative to whether or not the University can or will allow commencement of Construction Documents prior to completion and approval of the Design Development documents.

Proceeding with Construction Documents prior to completion of the Design Development phase, as noted previously is not uncommon when using a “fast track” approach. However, prior to doing so there needs to be a final check to make certain that the building program and footprint are fixed. If they are not, there is a significant risk in proceeding with footing and foundation packages as well as structural packages. It should also be noted that there will be changes, most likely to the structure, as more information is developed particularly related to the MEP systems and equipment. Usually that risk is manageable given the benefits of the early start.

The 10th Avenue Parking Garage time frame should be checked. It might be lagging just to coincide with other events that were not clear from the schedule. If the end date (of Design Development) is the key date, the start date could be adjusted for the appropriate time frame and there would be a float period between Schematic Design and Design Development.
3. The durations for the production of Construction Documents did not indicate any significant issues. The only difference between the current schedules and the benchmarks occurs in the Faculty Office Building West of Cannon time frames. As noted above, this may be a factor of comparing a fully built out building (faculty offices) compared to a typical medical office building where tenant suites are designed and produced in a different time frame.

The contracting process for the parking structure design work could be a situation where there is a difference in the assumptions. In many instances, parking structures are designed by specialty firms. These firms have the capability to design, engineer and produce the documents for a parking structure project in relatively short time frames (compared to more traditional methods). Those time frames could be compressed further if the Schematic Design is complete at the time the firm is engaged for Design Development. However, there is a caution with changing design teams on a parking structure project. There are nuances in the calculation of open areas and code interpretations related to the design that can be viewed differently by different firms and, if the initial assumptions prove to be incorrect, the entire design is potentially subject to change and, therefore, the schedule and budget could change as well.

Table 22 provides the same analysis for the Construction Documents phase as the Design Development phase.

4. The method in which these projects are organized, using the Executive Team through Schematic Design, also presents an issue from a scheduling perspective. At some point during the Schematic Design process the architect for the balance of the project needs to be selected. Ideally, that selection would dovetail with the completion and approval of the Schematic Design documents. In that way, there could be a fairly smooth transition into the Design Development phase and an ability to maintain the schedule for that phase. However, based on conversations with the University FOD group and some additional research with the State of Ohio concerning the mandated bidding process, the process will likely take longer than that allowed in the schedule. This is an obvious impact on the schedules for ongoing projects or projects that should already be engaged in that process. For projects not yet moving forward with the selection of the architect, it will require a change in the schedule to accommodate the overall time frame for the selection including Board of Trustee input (meeting dates).

### Table 23 – Architect Selection

<table>
<thead>
<tr>
<th>Remaining Master Facility Projects</th>
<th>Advertised for &quot;Bid&quot; Date</th>
<th>Status</th>
<th>Projected Date</th>
<th>Delay (Days)</th>
<th>Architect Contract Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer Hospital</td>
<td>3-Mar-2007</td>
<td>Delayed</td>
<td>7-Jul-2007</td>
<td>126 days</td>
<td>31-May-2007</td>
<td>Delayed</td>
</tr>
<tr>
<td>Clinical Expansion</td>
<td>3-Mar-2007</td>
<td>Delayed</td>
<td>7-Jul-2007</td>
<td>126 days</td>
<td>31-May-2007</td>
<td>Delayed</td>
</tr>
<tr>
<td>10th Avenue Parking Garage</td>
<td>22-Sep-2007</td>
<td>On Schedule</td>
<td></td>
<td></td>
<td>28-Dec-2007</td>
<td>On Schedule</td>
</tr>
<tr>
<td>Infrastructure / Roadways</td>
<td>3-Mar-2007</td>
<td>Delayed</td>
<td>7-Jul-2007</td>
<td>126 days</td>
<td>31-May-2007</td>
<td>Delayed</td>
</tr>
<tr>
<td>Rhodes, Doon, James MEP / Life Safety Upgrades</td>
<td>3-Mar-2007</td>
<td>Delayed</td>
<td>7-Jul-2007</td>
<td>126 days</td>
<td>31-May-2007</td>
<td>Delayed</td>
</tr>
<tr>
<td>Rhodes, Doon, James, Cramblett Renovation</td>
<td>5-Dec-2009</td>
<td>On Hold</td>
<td>2-Apr-2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Playfields)</td>
<td>5-Jun-2008</td>
<td>On Hold</td>
<td>4-Apr-2008</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes and Clarifications:**
1. The "Advertisement for Bid" date is based on obtaining Board of Trustees approval to proceed with the selection process and the approved firms.
2. The "Architect Contract" date is the anticipated date for completion of contract negotiations and having a contract in place.
3. "Delay" indicates that scheduled date has not been met. "Projected" is revised date based on information available at this time.
4. The "Projected" date for the Clinical / Cancer project is an assumed date for Board of trustee approval to proceed. It does not include potential time frame modifications for the bidding / selection process.
5. The "Projected" dates for the Infrastructure / Roadways and Life Safety Upgrades assume that a similar schedule compared to the Cancer / Clinical project are acceptable and that projects are not on critical path.
6. Projects that do not list "Status" are assumed to be on schedule with dates into 2008 and 2009.

Table 23 provides an overview of the current status of the selection of the architects for the projects that have schedules that indicate this process should be underway. There are four projects for which the architect
selection process should actually be complete and the architect under contract. In all four of these cases the process has not been initiated by Board of Trustee approval. That being the case, the Cancer / Clinical Expansion project, Infrastructure / Roadways and the Rhodes, Doan, James MEP / Life Safety Upgrades are a minimum of 126 days behind schedule. This is based on an assumption that Board of Trustee approval to advertise for bids would be obtained by July 7, 2007. It is likely that the date may be later than that which would increase the delay on a day for day basis.

Furthermore, the delay (126 days) is a current time span based on potential July 7, 2007 Board of Trustee approval. The duration allowed for the advertisement, selection and contracting process is a total of 89 days. Based on information obtained from FOD and the Stat of Ohio, this process would take a minimum of 95 days (“best case” scenario). This would push the date for the execution of the contract, based on the July 7, 2007 advertisement to bid date, to October 10, 2007 (132 days behind projected schedule). At that time the Design Development phase could commence. With a March 9, 2007 completion date for Design Development on the Cancer / Clinical project, there would be a window of 150 days to complete the Design Development phase versus the 197 days currently scheduled. This would, in effect, reduce the delay to 47 days (as the selection of the architect for the Cancer / Clinical project was completed substantially before the completion of the Schematic Design).

This analysis is purely based on scheduled dates. What it does not account for is the rationale for bringing on the architect for the Cancer / Clinical project under contract almost three months prior to completion of Schematic Design. The thinking is that this will improve the ability to bring the new team up to speed and to improve the transition into Design Development. Without this luxury, the ramp up for Design Development may be slower and the ability to shave time off the process (from 197 to 150 days) would be minimized and the probability that the time frame could extend beyond the 197 days scheduled for that phase.

The potential delay in the Design Development process will also impact the ability to start production of early construction packages for the Cancer / Clinical project. This then causes some stress on the construction schedule.

5. The selection of the Construction Manager does not appear to be on a critical path, although there would be similar concerns relative to the process as noted for the Architect. The time frames allowed in the current schedule are not in keeping with the information gathered. In the case of the Cancer / Clinical project, specific dates were not identified. Given the delay on the selection of the architect, dates should be established based on a revised schedule to ensure no further delays in moving the project to an early start date. This should be a common concern for all projects.

6. The documentation provided included construction start and completion dates. Based on the information concerning the current status of the Architect selection and the related trickle down impacts on the overall schedule, the construction schedules were reviewed based on the duration and not the start date.

There can be some impact to the duration that is dependent on the start date as that date will determine the winter requirements and the number of winters that those requirements may be needed. That could potentially extend the duration but would more likely increase the cost.
Table 24 – Construction Duration Comparison

<table>
<thead>
<tr>
<th>Remaining Master Facility Projects</th>
<th>Construction Start</th>
<th>Construction Complete</th>
<th>Construction Duration</th>
<th>Benchmark Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer Hospital</td>
<td>27-Jul-2008</td>
<td>19-Apr-2011</td>
<td>999 days</td>
<td>1,023 days</td>
</tr>
<tr>
<td>Clinical Expansion</td>
<td>27-Jul-2008</td>
<td>19-Apr-2011</td>
<td>999 days</td>
<td>1,023 days</td>
</tr>
<tr>
<td>10th Avenue Parking Garage</td>
<td>24-Feb-2009</td>
<td>30-Mar-2010</td>
<td>400 days</td>
<td>350 days</td>
</tr>
<tr>
<td>West of Cannon Faculty Office Building</td>
<td>4-Oct-2008</td>
<td>15-Sep-2009</td>
<td>347 days</td>
<td>365 days</td>
</tr>
<tr>
<td>West of Cannon Parking Structure</td>
<td>4-Aug-2008</td>
<td>20-Jul-2009</td>
<td>331 days</td>
<td>350 days</td>
</tr>
<tr>
<td>Infrastructure / Roadways</td>
<td>26-Jan-2008</td>
<td>25-Jun-2010</td>
<td>880 days</td>
<td></td>
</tr>
<tr>
<td>Rhodes, Doan, James MEP / Life Safety Upgrades</td>
<td>13-Oct-2008</td>
<td>26-Jan-2010</td>
<td>472 days</td>
<td></td>
</tr>
<tr>
<td>Rhodes, Doan, James, Cramblett Renovation</td>
<td>1-Sep-2011</td>
<td>20-Aug-2013</td>
<td>711 days</td>
<td></td>
</tr>
<tr>
<td>Other (Playfields)</td>
<td>9-Feb-2009</td>
<td>4-Feb-2010</td>
<td>371 days</td>
<td></td>
</tr>
</tbody>
</table>

Notes and Clarifications:
1. The time frames for the Cancer and Clinical projects are simultaneous and a single duration for both projects used on the assumption that the design can be completed in the same time frame.
2. The "Construction Complete" date is the scheduled completion of construction. The Executive Team has also established a "Project Completion" date which includes other functions such as commissioning, equipment installation, systems installation and other items required to be complete prior to occupancy and use of the facility.

The construction duration comparison is noted in Table 24. The proposed construction schedules compare favorably with the benchmarks. The schedule for the Cancer / Clinical project could be considered aggressive given the complexity and intensity of some of the interior work and the coordination issues with existing facilities that may require some phasing of the work to maintain ongoing operations. The other variances could be attributable to the time of year construction commences, amount of pre-construction work allowed and public approvals required and time frames for approval / issuance.

7. One set of data that is difficult to compare is the aforementioned public approvals. Projects have different requirements in different municipalities and states that make it difficult to establish any benchmarks. A thorough investigation of public approval requirements on the State and local levels is necessary to make certain that the schedules that are developed can accommodate the approval process. The number and type of approvals can vary with the project type (building versus parking versus renovation). Other approvals or requirements may also be mandated by funding sources and, therefore, this needs to be factored into the process as well.

Most, if not all of this information is readily available and subject to research and inquiry by the Executive Team or others. All assumptions should be noted and included in any detailed scheduling. Links to specific design and construction events will be key to making sure that they follow the process should there be any modifications to the schedule.

The hiring / contracting of any consultants (geotechnical, testing, etc.) also needs to be factored into the schedule. The delivery dates for information provided by these consultants can be key to maintaining the project schedule. All potential consultants (food service, medical equipment) should be identified and built into any detailed schedule as well.

The general conclusions from this analysis are:

- The time frames allowed for design are adequate for the building projects and generous for the parking structure projects.

- The Architect selection process is significantly behind schedule for those projects where this process should have been initiated at this time. The impacts to the overall schedule and completion date could
range from 47 days to over 100 days. University as well as State requirements need to be taken into consideration.

- Special attention needs to be given to the impact of the Architect selection process on the balance of the schedule and the selection of the Construction Manager.

- The construction schedules are within reasonable variance from benchmarks. However, special consideration should be given to special site constraints or other conditions that could impact that schedule. The schedule for the Cancer / Clinical project may be slightly aggressive given the intensity of the interior construction and some of the related coordination / phasing issues.

- All schedules should be updated based on current status and reviewed for consensus agreement. There is some disagreement among project participants relative to some schedule assumptions.

- All of the above statements do not take into consideration any impacts of the consensus related issues referenced in this Report (as it relates to the Cancer program). A final determination relative to Cancer (consensus on the current plan or modification to the current plan) will result in schedule modifications that cannot be identified at this time. Upon final resolution the Executive Team should undertake a process to identify a new schedule that would reflect any impact of that process.

**Impact on Budget**

Schedule shifts or delays usually have impacts in several areas. While the cause of a specific delay determines the responsibility for the initial cost implications there are usually other implications that are not quantifiable at the time the shift or delay is incurred. The point in time where the delay occurs also makes a significant difference.

A delay during the design process is usually more “forgiving” in that it can allow for the ability to make up the time through more aggressive scheduling for the remainder of the design process. There is an ability to dedicate more resources to the work to expedite the completion.

Delays occurring during the construction of a project have much more immediate impact as well as potential cost ramifications. Typically project schedules are less fixed during design and allow for some float time. Once construction commences, the schedule becomes more fixed and the expectations as they relate to a completion date are more firm. If there is a delay for any reason, there is usually a cost implication (extended schedule, extended general conditions costs, possible winter conditions costs, etc.). The cost implications might also exceed the obvious lengthening of the construction process. They could impact the revenue projections and other strategic and / or planning related to “time to market” or other issues. These types of costs are difficult to evaluate but it is safe to say the outcomes are usually not acceptable.

The cost implication of these types of delays, before the commencement of construction is in the risk associated with the timing of the buyout of the work and the potential escalation related to extending the completion date. As discussed in the Budget Section of this Report, market conditions (availability of contractors and subcontractors) and material cost volatility are key drivers in maintaining budgets. By extending the schedule for the commencement of the work the exposure to possible negative impacts regarding these items is enhanced. At the same time, a delay could lead to an improvement in market conditions and possibly even a decline in cost escalation. Both the positive and negative are possible and that is part of the risk associated with the timing of the project and the local market conditions.

As noted above, there are also issues specific to this project that will impact schedule and also budget. The time frames for the advertisement and selection of the architect and construction manager (including University approvals) appears to exceed allowable time frames. By not being able to select those project participants “on
schedule” the commencement of the Design Development process will be delayed. That, in turn, impacts the completion of design work and the production of the “early bid” construction packages. A delay in the issuance of these packages for bid will impact the commencement of these construction activities and, as a result, the completion of construction.

The issue of arriving at a consensus is of the same nature but is compounded further by the potential for some redesign or reprogramming of the project. The cost ramifications here are even more significant. Not only is there the potential related to a time delay, but there would also be ancillary costs should the result of achieving consensus necessitate redesign of portions of the project. The market related issues are a risk item. Redesign, should it be required, is quantifiable as far as actual costs. The design team can provide a cost for redesign based on an understanding of the nature of the changes. They can also identify a likely time frame for the completion of that work which in turn would allow for an adjustment to the schedule. What they cannot do is provide a cost for the associated delay as noted above. The volatility of market and materials is such that this would be difficult to quantify, but it would be prudent to assume a negative outcome rather than a positive one (unless there is a definite trend related to material prices that would change the current assumptions relative to escalation) and plan accordingly.

In all cases, the impact of any delays on the strategic objectives of the project and the revenue streams required for success can only be quantified by those generating the business plan calculations.

Issues Raised by OSU Board

As part of this assignment Hammes Company was also asked to review several key issues raised by the Board of Trustees related to the execution of the Master Facilities Plan. The specific issues and opinions are as follows:

Flood Plain

Several of the sites for proposed structures related to the Master Facilities Plan are located in an existing flood plain. Based on discussion with various parties, despite the fact that there are existing facilities in the same flood plain, the issue took on greater importance when the Army Corps of Engineers made suggestions / proposals that there could be some work required to existing dams and reservoirs that could cause a surge situation that would potentially flood along the Olentangy River. The surge could be as much as 5+- feet above the flood plain. An event of this magnitude would have significant impact on the facilities in the flood plain and, based on further discussions, the initial plans for the Corps of Engineers was tabled.

Nonetheless, this situation points out some of the issues related to building in flood plains and the necessity of making certain that the issues are addressed to minimize potential catastrophic results in the event of flooding. In response to the issue, the University has taken proactive steps to make certain that major service equipment is located out of the flood plain itself by instituting polices requiring that equipment be a minimum elevation above flood plain. There does, however, seem to be some confusion as to the exact requirement and the design team, when questioned, was in the process of validating the requirements and making any necessary adjustments to their documents.

It should also be noted that the situation on the east side of Cannon Drive is significantly different than the situation on the west side of Cannon Drive. It is likely that the construction on the east side of Cannon Drive will be protected through prudent design and in meeting the requirements established by the University. The design team has made it a priority to design within the specific University guidelines and also within a standard of care that would be acceptable. Care needs to be given to maintaining these principles as the design evolves, particularly in regard to the development of site and civil engineering documents which are not as well developed at this time.
The sites west of Cannon Drive present a different set of circumstances. The entire area west of Cannon Drive is well into the flood plain. It borders the Olentangy River on the west side of the site as is partially protected by a berm. However, any construction on this side of Cannon Drive will require substantial additional cost to mitigate potential water issues in the construction as well as to protect construction and critical equipment. This could encompass a myriad of potential solutions which have not been refined at this time. The Executive Design and Construction teams are very much aware of the situation and have been working together to develop possible alternatives based on cost, reliability and durability (life span). It is recognized that any design in this area will require a significant protection system. It was also noted that with the design of the Faculty Office Building West of Cannon and the Parking Structure West of Cannon being on hold, the development of these alternatives has not been a top priority at this time.

In summation, discussions with the Executive Team, FOD and the Medical Center Facilities group, there is a high level of awareness of the flood plain situation and a focus on making certain these issues are addressed in the design. A prudent solution is one that will cover the risks in a cost effective manner while understanding that a 100% solution is not necessarily an appropriate answer.

Utilities / Infrastructure

The situation concerning utilities and infrastructure appears to have two major points of concern. The first deals with capacity and the ability of the University infrastructure system to meet the needs of the new project. The second deals with the level of information currently available and the costs associated with the preliminary design.

To the first point, it appears that a good deal of time has been devoted to understanding the requirements related to utilities required for the implementation of the Master Facilities Plan including preliminary designs to understand capacity requirements and design those services. A preliminary plan to place a utility plant west of Cannon Drive was tabled as there were issues relative to the size and future capacity and the ability for the projects to carry that cost. It was determined that the costs were such that the plant was not a viable option at this time.

Alternatives have been investigated and preliminary designs have been developed for the purpose of making certain that utilities can be accessed and a plan that meets the needs of the Medical Center and University can be developed and executed. In developing this plan a good deal of time has been spent researching the existing conditions and capacities of utilities. However, there is some concern that the cost of this work has not adequately been addressed and that the overall picture (campus not Medical Center) has not been addressed in the kind of detail necessary.

This concern was voiced very strongly by the University Facilities Operations and Development (FOD) group. They expressed concerns relative to the current lack of detail concerning the overall infrastructure impacts (equally above grade as below) and the fact that the majority of the estimates that were available at the time were based mostly on allowances. The University requires a 2% of project cost commitment to landscape / hardscape. The lack of definition of this work at this time makes it difficult to assess this commitment. The allowance complicates that assessment further. It should also be noted that there is a concern on the opposite side of that argument that a 2% commitment on a project of this side might be excessive (approximately $9.6 million on the outstanding construction costs). FOD feels very strongly, and rightly so, that the infrastructure package needs to developed and included in detailed schedules for the individual projects and, more importantly, for the entire campus. There are numerous coordination issues that need to be considered on a campus wide basis to make certain that schedules are accurate, adequate and can be maintained without negative impacts on the operations or daily use of the remainder of the campus.

Another key item is to make certain that adequate system capacity and redundancies exist to provide for the ongoing operation of the campus and Medical Center. If the relocation of utilities servicing the Medical Center or
other critical systems on campus is required, alternative means for providing back-up capabilities need to be understood and confirmed prior to proceeding with work. To proceed without having this either confirmed or addressed in some manner (so everyone understands risks and protocols) would be a significant risk.

In understanding these concerns it is important that in addition to utilities, infrastructure includes parking, roadways, landscape and hardscape and other “surface” amenities. These are equally important to ongoing operations and development of the campus and FOD feels strongly that this needs significant additional design, pricing and scheduling to be validated before moving forward with these projects. We would be in agreement with this need and recommend that additional time be spent to clarify and understand the scope and costs with fewer assumptions and allowances.

**“Fast Track” Schedule**

The schedule(s) for these projects are represented as “fast track” from the standpoint of preparing and issuing early bid packages for specific portions of the project to allow for the construction to get an early start while the balance of the construction documents are being completed. Under more typical contracting methodologies this is a fairly typical tool used to push project schedules and completion dates. In this particular situation, with multiple prime contracts this becomes a little more difficult and, to a certain degree, cumbersome.

The questions brought forward for consideration on this topic are twofold. The first deals with a comparison of the schedule to other benchmarks. The second deals with the risks associated with “fast track” scheduling and whether or not they have been adequately addressed. In both cases, the contracting method required by the State of Ohio complicates the comparisons.

One of the key elements in the “fast track” process is to make sure design and construction documents are coordinated as the preliminary or early bid packages are going to be based on the assumption that the building footprint and structural design are complete and will not change. The duration of the design and construction document production drive the dates for bidding and subsequent contractor selection and construction. Delays in the production of the documents will cause adjustments to the schedule.

There are a host of issues related to this process and the schedule that are addressed elsewhere in this Report (Schedule Section) that deal with the issues related to meeting and maintaining the current schedule. What we are addressing here is the comparison of the projects schedule(s) to benchmarks as it relates to the “fast track” option.

The project schedules as currently constructed take a reasonable approach to “fast track” in that they focus on the early release of bid packages and the correct bid packages to allow for commencement of construction prior to the completion of the entire design. They allow appropriate time frames for the development of documents under normal circumstances (traditional one design firm for entire design process rather than transition from Executive Architect to project architect). The time frames established in the current schedule will require a fairly seamless transition for one design firm to another. This is purely a scheduling function at this time and the greater concern might be the process for selection of the project design firms and the coordination and timing of those selections given the way many project components are interrelated. Missing or ignoring those interrelationships would be a critical error as there would be an increased exposure to gaps in documentation and contract coverage.

The “fast track” method essentially breaks the construction document preparation phase into multiple pieces to allow construction to begin at an earlier date than if the entire set of construction documents had to be produced and bid simultaneously. In some respects, the multiple prime contracts required by the State of Ohio can simplify this process by breaking out these contracts independently of any others provided the work scopes do not require participation by other contractors whose work has not yet been bid and will not be bid or contracted by the point in time that the coordination is required.
This becomes somewhat of a risk which brings us to the second point of the question. The second concern included in the key questions provided by the Board Task Force was, “Are the related risks (“fast track”) addressed appropriately?”

This is a somewhat difficult question to answer in that the development of the bid documents will go a long way toward identifying specific risks and addressing them appropriately. Those documents have not been developed at the time of the review. However, there are other risks associated with the “fast track” schedule that can be identified at this time to ensure that they are addressed at the appropriate time. These apply to individual projects and to the total plan in general and include:

1. Is the design complete enough to warrant proceeding with the construction documents for specific early bid packages? Is there a possibility that the design could change due to outstanding concerns about program or other specific project elements? Obviously, the Cancer related issues would be an immediate issue for the Cancer / Clinical expansion but there would also be “fall out” issues related to other projects (West of Cannon projects, infrastructure projects). The result is a potential waste of construction document dollars should the design change. Taking it a step further the next issue would be contracting for a scope of work that changes significantly after bid and would require a change order (eliminating a good deal of the competitive bidding nature of the pricing). The magnitude of the potential change would determine the amount of risk.

2. Can the scope of work being bid be considered typical for the bid package? Things that should be avoided are having multiple subcontractors responsible for similar systems on the project. An electrician required for a portion of the foundation work might not be the same electrician selected for the balance of the project. A problem with the electrical system in the future could result in potential disagreement between contractors on the responsibility for the work. The design needs to be completed with appropriate break points to make sure that this can be accomplished clearly and with minimal issues. In regard to the interrelationship of projects and the likelihood that the schedules are different there also needs to be a concerted effort to coordinate those documents and eliminate potential gaps that do not get bid. Having multiple design teams complicates this. Having the Executive Architect participate with the selected design teams will mitigate this to an extent.

3. If the projects each have an individual Construction Manager there is a similar concern relative to timing and coordination. There needs to be ongoing discussion relative to who is doing what and how that is being accomplished to make certain there are no gaps. However, the greater concern with the transition from Executive Team Construction Manager to individual or a global Construction Manager for the implementation as it relates to “fast track” is the budget. Under more traditional “fast track” approaches, the cost of the project is developed and someone assumes a risk for that cost. Typically that is the construction manager or general contractor. This provides the Owner with a level of security in moving forward with the early bid packages. Without this “umbrella” the Owner assumes the risk relative to the cost. If the footing and foundation work is bid early and within budget there could be a potentially false sense of security that everything else will be bid on budget. If that does not happen the Owner is faced with possible redesign issues that will result in additional costs, delayed schedules and even some demolition of existing work. This usually results in the use of contingency dollars and could deplete those contingencies too early in the construction process.

4. By changing the construction manager from the Executive Team to the specific project or global construction manager there is going to have to be “buy-in” on the budget from the implementation construction manager(s). This needs to be considered and made part of the Request for Bid / Proposal from the Construction Manager(s). This becomes a difficult part of the transition process and also makes a case for having a single or global construction manager for all of the projects. This provides a much better solution and overall coordination. In either case, these construction managers need to be hired in a timely fashion to allow for the use of early bid packages and “fast track” scheduling. Based on schedule reviews that process is lagging behind the schedule at this time.
5. Another risk inherent with “fast track” scheduling is the coordination with existing facilities. This is a part of the process that typically tends to lag behind in design due to the requirements for existing documentation or inspection of existing facilities and systems. To proceed on a “fast track” basis these issues need to be understood and solutions should be developed early to ensure that they can be covered and that work does not proceed “ignorant” of those issues.

In conclusion, “fast track” scheduling requires a significant degree of coordination and a certain degree of risk. Under the current plan and process, the assumption is that all of these pieces will come together and that the budgets established are appropriate and adequate. This includes the assumption that contingency amounts are sufficient to deal with any “risk” related issues without depleting them to the point that they are insufficient for the completion of the projects. It also assumes that those “risks” lie with the Owner and not individual Executive Team or project specific team members. The contingencies included in the budgets at this time (8% construction, 2.2% project and 3% risk) are significant in total dollars (approximately $60 million on remaining construction costs). However, under typical “fast track” guaranteed maximum price projects, we would be seeing and recommending contingencies in the range of about 15% at the time Schematic Design is completed (5% construction, 5% design / estimating and 5% owner contingency). These would be reduced as documents are developed allowing for more detailed pricing and a higher degree of certainty in that pricing. Given that this type of contracting methodology places that risk with the Owner, the 13.2% combined contingency is viewed as marginal at this time and should be held through the completion of Design Development.

It should also be noted that under the multiple prime contractor scenario, contingency issues can be increased. Unless each of the prime contractors is carrying a contingency specified in bid documents, they will not have contingency built into their bid in order to be competitive. That means there will be an increased reliance on Owner contingencies for items that normally might be covered under a contractor contingency in other forms of contract. Our experience is that in “lump sum” bid scenarios the number of change orders and need for owner contingency dollars is significantly higher than under different scenarios (guaranteed maximum price or other “at risk” type contracts). Without question, under “at risk” contracts, the construction manager or general contractor has to build in some additional contingency to protect themselves, it is a much more quantifiable risk for them and allows them to absorb some of the items that under a “no risk” situation will come back to the Owner. We typically see that contingency risk factor in the 1.5% to 2% range and expect that to be returned to the Owner as work is bid and contracted without major use of that risk contingency.

It should also be noted that the above mentioned contingencies are across the board for all projects. Typically, parking structure projects represent less risk and fewer major bidders. They are typically contracted with more complete documents and require lower contingencies. The exceptions would be when there are potentially poor soils or geotechnical conditions, infrastructure issues, winter requirements or other factors of an “unforeseen” nature. These can typically be quantified and incorporated as separate allowance or contingencies in the owner budget. Early understanding and evaluation is important.

Architect, CM and Other Fees
The Board Task Force asked whether or not the fees being charged / budgeted for the Project were appropriate. In reviewing the budgets, several items were noted in this regard:

1. The Mater Facilities Plan implementation (Phase I) is somewhat unique in that it has a significant total cost ($780 million) but is made up of several different and diverse projects, most of which are of typical size and complexity (parking structures, hospital, infrastructure). Each project has some unique qualities but in general they can be viewed as not “atypical” as individual projects. However, when taken as a whole, they present some challenges relative to coordination and making them work together. For that reason, the Executive Team approach is one that makes sense to ensure coordination and continuity in the process.
2. The Executive Team fees average approximately 3.2% across the board for all projects. Again, looking at this in aggregate, rather than on a project by project basis (using size, cost and complexity as the determining factors) this is a reasonable fee as it includes both the design and construction management aspects.

3. It should also be noted that because the Executive Team is taking this work through Schematic Design, the design fees allowed for the balance of the work should be lower to compensate for the fact that the project specific teams will not have to do the Schematic Design.

4. The Construction Manager fee allowed in the budgets ranges from 4.5% to 6.8%. The 4.5% fee allowance is for the Spirit of Women’s / Playfields projects. The higher fees, 5.8% to 6.8%, are for the larger and more complex projects. Typically, we would envision fees for larger projects being smaller on a percentage basis as they would still represent significant overall dollars for the construction manager. Our experience on projects where the construction manager is not self-performing any work is that the fees range from 1.75% to 3.5% percent. The fees where the construction manager is self-performing some of the work could be lower. The fee amounts allowed in the budget are more than adequate. The unknown factor here is the expectations relative to the construction manager’s scope of work, level of risk and responsibilities and how that relates to their fees.

5. The design fee allowances for the individual projects range from 5.3% (parking related projects) to 8.5% to 9% (other projects). Looking at comparable benchmarks for similar projects (looking at them as individual projects) the fee range for parking structures is typically 4% to 5%. In this case the fees allowed are similar but it should be noted that the Executive Team is going to complete the development through Schematic Design. This is probably worth 15% of the total fee (or a reduction of .75% to 1%). The fee allowances for the other projects are significantly higher than similar project benchmarks. Specifically,

- The Clinical Expansion and Cancer Hospital fees are allowed at 9%. Combined, the project is an approximately 450,000 square foot hospital. Comparable project fees (including architecture, structural, MEP and interior design) have been in the range of 6%.

- The Infrastructure and Roadways project has an allowance of 8.7%. This is a little more difficult to compare as it is not a typical civil engineering exercise. However, civil engineering on projects can typically run in the range of 5.5% of the site work cost.

- The MEP upgrades to the Rhodes, Doan, James and Cramblett buildings is included at a fee allowance of 8.5%. Again, this is a little out of the ordinary for being able to identify comparable fees. However, if the typical assumptions are made that the MEP fee for a project similar to the Clinical / Cancer project is approximately 30% of the total design fee (2%) and then factored for the MEP cost only (typically 35% to 40% of a hospital project construction cost), the fee allowance should be closer to 5%. However, since this is retrofit type work, the percentage should be slightly higher as there is a lot more front end work that needs to be done to research and understand the existing conditions and to investigate them on site. A fee in the range of 7% to 8% is probably appropriate.

- The Rhodes, Doan, James and Cramblett renovation work is also a somewhat unique project. However, remodel work is typically budgeted for design at 9% to 10% depending on the size and complexity of the work. This fee percentage would include MEP engineering so there may be some overlap with the RDJC MEP work and, therefore, the percentage used at 8.5% is appropriate.

- It should be noted that in any renovation / upgrade scenario (both RDJC) projects, there is likelihood that there will be additional fees incurred as unforeseen conditions are uncovered during the renovation / upgrade process. The project contingencies or design fees should account for this possibility.
One other factor that should be noted with all of these comparisons is, as mentioned previously, the Executive Team is taking the design through the Schematic Design phase. Traditionally, this is assumed to represent 15% of the design fee. Given that assumption, the design fees stated should be adjusted accordingly. In other words, the comparison benchmarks include the full project design. The budgets exclude (or should exclude) Schematic Design which increases the gap between the comparison and budget numbers. It should also be noted that in the total budget comparisons, Hammes Company has made an allowance for additional design fees for unforeseen conditions or other Owner requests to provide what we believe is a realistic assumption that there will be some additional services fees granted to the architect. The budget detail for the projects that was furnished for this analysis was not clear as to any such allowance. Table 25 provides a comparison of the stated analysis above.

### Table 25 – Design Fee Comparisons

<table>
<thead>
<tr>
<th>Remaining Master Facility Projects</th>
<th>Fee as Percentage of Construction Cost</th>
<th>Fee as Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget Fee Amount</td>
<td>Benchmark Comparison Fee</td>
</tr>
<tr>
<td>Cancer Hospital</td>
<td>9.17%</td>
<td>5.85%</td>
</tr>
<tr>
<td>Clinical Expansion</td>
<td>9.17%</td>
<td>5.85%</td>
</tr>
<tr>
<td>10th Avenue Parking Garage</td>
<td>5.39%</td>
<td>4.50%</td>
</tr>
<tr>
<td>West of Cannon Faculty Office Building</td>
<td>7.08%</td>
<td>6.30%</td>
</tr>
<tr>
<td>West of Cannon Parking Structure</td>
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<td>4.50%</td>
</tr>
<tr>
<td>Infrastructure / Roadways</td>
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<td>4.95%</td>
</tr>
<tr>
<td>Rhodes, Doan, James MEP / Life Safety Upgrades</td>
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</tr>
<tr>
<td>Rhodes, Doan, James, Cramblett Renovation</td>
<td>8.54%</td>
<td>7.65%</td>
</tr>
<tr>
<td>Other (Playfields)</td>
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<td>4.95%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes and Clarifications:**

1. The "Budget Fee Amount" represents the proposed design fee divided by the proposed construction cost excluding the "Civic Structures" portion of the construction cost. This is assumed to be an allocation for site / civil related costs which are typically viewed as a separate fee component in the benchmark fees.

2. The "Benchmark Comparison Fee" is adjusted to factor out the Schematic Design portion of the fee at 15% of the total fee.

A final thought on the fee issue is that there is also a fee included in each project budget for the University Facilities Operations and Development group. Given their responsibilities for the project, it is appropriate to assess some type of charge for this effort. This would be a fee that is not typically incurred on other benchmark projects and, therefore, there is not a comparison included in our analysis. It is assumed that the fee is a standard or fixed amount typically charged by FOD and that this is a standard practice for the University to assess some type of charge to specific projects requiring FOD participation.

### Break Points

Another Task Force question centered on whether or not there were any “natural break points or check points where adjustments can be made after construction has started?” Most design and construction professionals will state that there are no “natural” break points at any time in the design and construction process. There are several reasons for this.

First, a prolonged “break point” in the design process could result in the loss of key design team members to other projects that are moving forward. Moving personnel to other projects it causes potential gaps in the understanding of design concepts and intent.

A “break” in the design process also impacts the design schedule which in turn impacts the initiation of the construction process. This could be an impact to the actual production of documents; there could be a loss of
IV. MASTER FACILITY PLAN REVIEW

design intent continuity with the team and users; or there could be a loss of momentum with the public approval process.

“Break points” in the construction process have similar ramifications. A prolonged “break” could lead to the break-up of the project team. However, more importantly, once construction has started, a “break” in the work costs the Owner money in general conditions costs for the on-site facilities and personnel already in place (construction staff, trailers, equipment, etc.). These costs on projects the size of the Clinical / Cancer project could be in excess of $200,000 to $400,000 per month dependent on where in the process the “break” might occur.

Furthermore, the “break” causes problems (business issues) for subcontractors and vendors and also breaks any favorable schedule momentum that has built up on the project.

These are all legitimate concerns from the design and construction standpoint. However, they do not necessarily have the best interests of the Owner in mind. In most cases, particularly with projects of this magnitude, the design and construction teams will manage to work around issues to make certain that they maintain project continuity and owner relationships. They can work around minor or short duration “breaks” and negotiate relative to longer “breaks”.

In the case of the Master Facilities Plan implementation, the more likely scenario related to “break points” would include:

- A “break point” for evaluation at the completion of Schematic Design where the scope and budget for each of the individual projects can be reviewed and updated. These dates fall at different times for each of the projects so the projects that are further out on the schedule can be evaluated individually and in the context of the overall Master Plan implementation and where that stands relative to budget and schedule. Table 26 identifies the scheduled Schematic Design completion date from the February 2007 Progress Report. It should be noted that some of these dates may no longer be applicable but they are used to demonstrate the spread in these dates.

- Based on the scheduling this would also be a likely “break point” because there will be a transition from the Executive Team to the construction team(s). There will be some time required to bring everyone up to speed on the individual projects and the total plan. Although the schedules try to make this a seamless transition (no lost time) it is likely that the identification, bidding and selection process will impact this to a certain degree and allow for some down time in the process.

- Another possible break point is at the completion of Design Development. However, this would be a situation that would need to be reviewed on each individual project. The “fast track” approach would allow for the completion of some early construction document packages before final completion of Design Development work. This would mean that the project could begin construction before the end of the phase and, therefore, eliminate a real “break point” for evaluation of the project status.

- There is also some flexibility in the overall Implementation Plan in that this is a series of projects rather than one large project. They projects have different start and completion dates and although they are inter-related, there is a possibility of inserting decision dates into the schedule which would in essence provide “break points” in the evaluation of the overall Plan prior to proceeding with a specific “next stage” project. Doing this may impact schedules further downstream but it provides some flexibility to review the overall status of the Implementation Plan and make decisions based on what is known at that time. This could also impact coordination issues but having a management process in place should identify those issues and set a strategy in place for decision making in a timely manner.
As noted previously, actual “break points” once construction has begun are not recommended because of cost related issues. This requires that budgets be as accurate as possible at the point in time which a project moves into the “fast track” mode. If not, and budget overruns are identified well after some of the early phase work begins, there will or might need to be a stoppage to redesign or re-evaluate (value engineering or value analysis) the project. This is critical for the aforementioned reasons. It impacts the individual project schedule, it the overall Master Plan implementation schedule (given the interrelationships of the schedules), and it impacts cost.

It should also be noted that the Executive team has been developing a process for the identification, review and approval of changes to the project scope and budget. This process is being developed with the intent of maintaining project momentum and schedule. It does not take into consideration some of the issues related to the nature of some changes and who might need to approve those changes. A process that does not allow for this can put the University and the Medical Center in a difficult situation as it would not allow sufficient time for the appropriate individuals or groups to review proposed changes and if the review took longer than allowed it could cause delays which open the door for additional costs.

In conclusion, there are some logical “break points” that occur in the design phases of the projects. However, once they go to construction there are not opportune times for “breaks” in the process without spending schedule time and construction dollars. A premium must be placed on budget accuracy to minimize potential issues with costs exceeding budgets for specific projects to mitigate potential unnecessary breaks and to require re-evaluations of project design and scope to meet budget. It is paramount that projects are analyzed individually and as a whole and in more detail than what has been provided for this analysis to make certain that these potential situations are avoided. The expertise of the University FOD or outside consultants will be critical to the success of this process.

**University / Medical Center Staff Capabilities**

Another concern raised by the Board Task Force was whether or not the University and Medical Center had staff of sufficient experience and background to manage the projects on the part of the University. Hammes Company met with the University Facilities Operations and Development (FOD) staff and with the Associate Vice President Facilities Materials Management for the Medical Center (Eric Kunz) to discuss the projects and any related concerns. In general, the individuals that participated in the interviews represented a cross section of the professionals that would be involved in project execution and all of them comported themselves professionally and appeared to have above average skills.
Based on our interviews and discussions, FOD and the Medical Center Facilities Management people work together on projects regularly and there is a working relationship between them (see next Section – University / Medical Center Relationship - Facilities). The FOD staff has the responsibility for cost accounting and control and project delivery. They provided a detailed summary of project participants and an organizational chart for their roles. This was helpful in understanding the methodology they intend to use in managing the projects.

It is difficult to make more than a general statement without watching these individuals interact in the design and construction process and to see quantifiable project results. At the same time, it should be noted that if the projects are considered in aggregate there are few people with experience on projects of this magnitude ($780 million). However, it appears that the intent is to have individual project management individuals assigned to individual projects within the Master Facilities Plan. This allows for a maximized utilization of staff and to tailor the assignment of staff to projects commensurate to the experience level of the individuals. This also allows for the ability to not overburden the key people on the larger projects with the responsibilities for smaller projects (which often can be equally time consuming). Individuals may have multiple project responsibilities, but it appears that when that is the case it has been assigned to avoid major overlaps with multiple projects at the same stage of development or construction.

Based on the brief amount of time spent with these individuals and the information provided, the University and Medical Center staff appear to be qualified and organized to effectively perform their functions for these projects.

University / Medical Center Relationship (Facilities)
During the course of interviewing the various stakeholders and project participants, Hammes Company has identified one other potential issue that relates somewhat to the consensus issues raised elsewhere in this Report. In this case the “consensus” at issue is between the University Facilities Operations and Development (FOD) group and the Medical Center Facilities Department. The FOD team noted several items of concern during an interview. As this was one of the later groups to be interviewed there was some concern that other groups involved with the project did not share or had not focused on these concerns.

The specific concerns are identified here and enumerated as possible discussion points. They are not identified in any specific order relative to criticality or impact.

1. FOD expressed concerns about whether or not the design is being forced into a budget rather than a budget developed based on an appropriate scope of work and a related schedule. This is not an unusual concern when there is a fixed or hard cap to spending. It can be problematic and needs to be watched to prevent the reduction of scope that may be essential to the success of the project. If decisions of this nature have been made they should be revisited and confirmed.

2. FOD believes that there needs to be better definition to some of the risk management issues. This includes making sure there are no gaps in insurance coverage (particularly builder’s risk), business continuity during construction and better scope and definition for the infrastructure work (particularly above grade work). These issues should be reviewed with University risk management professionals (insurance related issues) and the project team to build a consensus.

3. Geotechnical evaluations should be completed ASAP. At the time of the discussions, this work had not been completed (or contracted) and, therefore, there are a lot of assumptions related to the underground conditions that are not known and could have significant design and cost impact on foundation and / or structural systems. The more than is known about the underground conditions the earlier in design will be a benefit from both a design and pricing perspective. No one will guarantee underground conditions but knowing if there are potential issues will help in developing adequate / appropriate contingencies.
4. The schedule as currently envisioned should be revisited and updated to reflect decision making dates for the University (as it relates to architect and contractor selection). The current schedule is out of date for some of these items. The process for obtaining University approval to advertise and select architects and construction manager(s) for the projects will take substantially longer than the time frames identified in the current progress reports.

5. There is a concern that the Executive Construction Manager can become more of an employee than a consultant by getting too involved in the strategic issues and trying to bend the schedule to meet needs rather than to develop a “true” schedule and see how it can be managed to improve on the dates.

6. The decision making process being developed by the Executive Team could be problematic. It will be difficult to fit the decision making process for FOD and the University into the proposed time frames and in some instances and that will cause delays (unfairly).

7. The parking plan needs to be reviewed in detail and coordinated with the entire University. This has not been done and is viewed as being critical to success and maintaining ongoing operations on the campus during construction. This is an area of focus that needs to move up the list of priorities for the Executive Team.

8. FOD feels strongly that a “global” construction manager should be selected to oversee all projects and not individual construction managers for each project. Given the complexity of some of the projects and the integration of all of the project schedules this would be viewed as an appropriate choice should it be acceptable under State of Ohio guidelines.

9. Contingencies were also a concern to FOD. They feel that this is something that needs to be reviewed and validated prior to finalization of the budgets.

It should be noted that not all of these issues represent concerns that have been raised within the Executive Team process. FOD believes that they have not been addressed to the extent that they feel comfortable with the results at this time. They do not necessarily represent a disagreement with other Executive Team members as much as they represent different concerns of different constituencies that need to be addressed with and as part of the Executive Team concept.

These concerns need to be built into the overall planning process to ensure that they are addressed. At the same time there should be some additional discussion between the University and the Medical Center relative to the interaction and responsibilities of each group to make sure that the process is managed in a cohesive manner by the University which sends a very favorable message to the entire team. Addressing these issues can easily be accomplished in the time frame during which the Cancer / Medical Center issues are being resolved if there is a spirit of cooperation. There is no reason to expect something other than that.

A final concern raised by FOD was whether or not there are adequate “peer” comparisons for these projects. As a whole, there are very few. The $780 million total budget makes that an obvious conclusion. However, when each project component is viewed independently, there are adequate comparisons.

The parking structures are in the 600 vehicle range. In talking with design firms that specialize in parking structure projects, there are multiple projects around the country of similar size (within 100 vehicles larger or smaller). There is also a data base of similar type projects from which to draw some additional comparisons. The major elements in identifying the comparisons would be the type of construction (precast or cast in place concrete) and the level of articulation or aesthetics used for the exterior enclosure design. Both of these can be addressed in the comparison process.
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The Clinical / Cancer facility has fewer potential “peer” projects as the scope of this project is more intense than a new hospital. Most of the “peer” type projects in the range of cost and square footage would have a less intense mixture of clinical / patient space and soft space. This might make some of the evaluation more difficult but in general, once the program differences are understood a reasonable comparison is possible.

The renovation work is more of a generalization based on the intensity of the renovation (cosmetic, minor, major) and the MEP / Life Safety system upgrades are more a function of understanding major equipment components. Both of these can be compared in different ways and not necessarily to other projects of the same scope but more toward similar intensity (renovation) or by type and quantity of major equipment. Many MEP engineering firms are well versed in the MEP aspects and would serve well as a secondary consultant in reviewing that scope and cost.
The second component of the Hammes Company scope of work was a review of the financial relationship between the James and All Other Components of OSUMC. As outlined in the Scope of Work from the original RFP, this review included the following:

- Review and validate the funds flow between the James, the OSU CCC, the OSUMC, and the University
- Review and validate the financial benefit of the Medicare exemption for the James and the rest of the OSUMC
- Review and validate costs and benefits of the Master Facilities Plan (Phase I) to the James and the rest of the OSUMC, including James Care and the ambulatory care plans.

This Scope of Work was subsequently clarified through “Key Questions” that identified the issues to be addressed during the review, including:

- Does the current Master Facilities Plan differ from the original Project Cancer Plan and if so how? What is the potential impact on the Cancer Program Strategic Plan?
- What funds are moving from the Health System to the James/CCC and from the James/CCC to the Health System?
- What are the direct and indirect benefits to the James from the Master Facilities Plan?
- What are the pros and cons of moving the inpatient and additional outpatient cancer program closer together in Phase I of the Master Facilities Plan?

The majority of these questions were addressed during our review of the Medical Center Master Facilities Plan (Section III). As a result, this section focuses on the second question relating to the flow of funds between the different components, including:

- Overview of the funds flow – What are the components of the different fund flows and what is the basis for the amounts?
- Cumulative Benefits – Which components benefit from the current funds flow?
- Benchmark Analysis – How does the operating performance of the James compare to similar institutions?

**Overview of the Fund Flow**

The primary flow of funds between the James and the other components of the Health System include:

- A “pass-through” allocation that the Health System receives from the University
- An “overhead” allocation from Shared Services that covers primarily non entity specific administrative costs
- A “purchased services” allocation from University hospital (primarily) that covers patient care services provided to James patients in University hospital (primarily) areas
- A transfer from the James to the College of Medicine for faculty support and to the CCC for program support

Each of these funds is described in more detail below.
V. **FUNDS FLOW ANALYSIS**

**University Pass-Through**

The pass through allocation from the University is a charge to every non-General Funds unit for administrative support costs such as central payroll, liability insurance, central accounting and police protection. The amount of this pass-through allocation is based on a methodology derived at the University level, and is assumed to be determined, calculated and applied in a reasonable method, applicable to all University divisions affected. This can be thought of as a “fixed” cost as it is not under the direct control of the Health System.

The amount of the expense allocated to each entity within the Health System (e.g., University Hospital, The James, etc.) is determined by the Health system on a reasonable allocation methodology that is not in question. Thus, this expense is essentially a “cost of doing business” as an entity of The Ohio State University.

Based on 8 months of fiscal year data (as of February, 2007), the allocation from the University to the Health System was approximately $19 million; of this amount, approximately $4 million had been allocated to The James (about 21% of the Health System total).

<table>
<thead>
<tr>
<th>YTD through Feb 2007 (8 mos) ($000)</th>
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<tbody>
<tr>
<td>Health System total</td>
</tr>
<tr>
<td>$19,188</td>
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<tr>
<td>James allocation</td>
</tr>
<tr>
<td>$4,019</td>
</tr>
<tr>
<td>% of Total</td>
</tr>
<tr>
<td>21%</td>
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**Overhead Allocation from Shared Services**

This expense item represents each entity’s share of overall Health System overhead costs that are not otherwise directly attributable to any specific entity of the System. For example, items such as Health System administration expenses, general marketing or development expenses, and similar system-wide overhead, are allocated to each entity based largely on usage; the overhead allocation is based on an extremely detailed allocation methodology which has been agreed to by the impacted entities and is reviewed regularly. The James’ share of this allocation through February, 2007 was approximately $14 million out of a total of about $80 million, or roughly 18%.

<table>
<thead>
<tr>
<th>YTD through Feb 2007 (8 mos) ($000)</th>
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</thead>
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<tr>
<td>Health System total</td>
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<td>$80,069</td>
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<tr>
<td>James allocation</td>
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<tr>
<td>$14,097</td>
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<tr>
<td>% of Total</td>
</tr>
<tr>
<td>18%</td>
</tr>
</tbody>
</table>

**Purchased Services Allocation**

This allocation represents the costs of providing patient care services, generally by University Hospital, to the patients of other entities, such as The James, University Hospital East, Ross Heart Hospital, and others. These services include patient care areas such as ICU, Pharmacy, Lab, Radiology, OR/surgery, Physical Therapy, etc. For example, if a James cancer patient receives services from the Intensive Care Unit of University Hospital (e.g., because The James either does not provide ICU services or is unable to provide them due to volume or other constraints), the cost to University Hospital of providing that ICU service (e.g., staffing, supplies, utilities, etc.) is “charged” to The James via this allocation.

These expenses are calculated based on actual usage of each entity of each service; that is, it is relatively straightforward for University Hospital to determine the number of patients, and/or the type of service provided to patients, of The James, Ross, UHE, etc. In addition, the actual cost of each service provided has been determined by a detailed cost accounting methodology, which includes both direct and indirect costs, developed over many years and agreed upon by all Health System entities. This methodology was reviewed and explained, and appears
at a high level to be a reasonable means of calculating the actual costs to the Health System of providing such services. *It should be noted that the cost accounting methodology (to determine actual cost per service) and allocation methodology (to determine the actual costs charged to each respective entity within the System based on volume metrics) were not reviewed nor tested in detail for this project.*

It is important to note that the detailed cost accounting methodology used in this process does not take into account the initial capital costs of acquiring equipment, technology or space related to, and necessary for the provision of the services involved. In general, depreciation expense is included in the calculation of unit-costs, but it is our understanding that the implicit cost of capital for outlays not funded by debt (i.e., purchases from cash reserves or operating income) are not included in the allocation.

However, the “owner” of a given piece of equipment or technology is in an advantageous position with respect to the ability to bill for “undesignated” patients, thus helping to offset overhead expenses not included in the inter-hospital allocations. A further benefit that accrues to the “owner” is that, because purchased services are “paid for” via inter-company transactions, there is virtually a guarantee of timely payment for those services that are purchased by related entities, as opposed to the uncertainty of payment and the timing thereof when patients or third party insurers are billed for services. While there is truth to those statements, it is also true that the “owner” still does bear the burden of acquisition, maintenance, billing/accounting, etc. with respect to such capital items, particularly if there are insufficient “undesignated” patients.

Of the total of these inter-hospital patient services of about $103 million through February, 2007, The James incurred over $63 million or 61% of the total. This indicates a significant usage of these types of services by The James, as well as the strong need on the part of the System to have and provide such services.

<table>
<thead>
<tr>
<th>YTD through Feb 2007 (8 mos) ($000)</th>
<th>Health System total</th>
<th>James allocation</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 103,263</td>
<td>$ 63,430</td>
<td>61%</td>
<td></td>
</tr>
</tbody>
</table>

**Purchased Patient Services Revenue**

Although not technically part of the “funds flow” between entities of the Health system, it seems appropriate to include at this point information relative to the revenues associated with “purchased patient services”, i.e. the income portion of the services described immediately above. As discussed with respect to how each entity is “billed” for the cost of patient care services that it receives from University Hospital, the entities receiving these services in turn bill their patients for payment of those services, and count those revenues on their own individual income statements.

The James was able to bill for more than $267 million in revenue (collections are estimated at $105 million) versus $63, million in cost from these patient services through February, 2007, or 63% of the total for the Health System.

<table>
<thead>
<tr>
<th>YTD through Feb 2007 (8 mos) ($000)</th>
<th>Health System total</th>
<th>James allocation</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 425,968</td>
<td>$ 267,485</td>
<td>63%</td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, it appears The James has the added benefit of receiving payment or reimbursement from Medicare and Medicaid for these services under the preferential PPS-Exempt methodology. That is, while The James
“buys” these services from University Hospital at cost, it also enjoys the benefit of reimbursement of those costs (for Medicare and Medicaid patients, allowable under its PPS Exemption) at a higher rate than what it pays for the services, due to the difference between the Health System’s cost accounting methodology and the CMS cost reimbursement methodology – see above for more information on the PPS Exemption.

Summary
The table below summarizes the main items of funds flowing between and among the various Health System entities.

<table>
<thead>
<tr>
<th></th>
<th>Univ. Pass-through</th>
<th>Shared Services</th>
<th>Inter-Hosp Pt/Admin Svcs</th>
<th>Purchased Pt Svcs</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Hospital</td>
<td>$ (8,587)</td>
<td>$ (43,129)</td>
<td>$ (15,252)</td>
<td>$ 39,252</td>
<td>9%</td>
</tr>
<tr>
<td>James</td>
<td>$ (4,019)</td>
<td>$ (14,097)</td>
<td>$ (63,430)</td>
<td>$ 267,485</td>
<td>63%</td>
</tr>
<tr>
<td>Ross</td>
<td>$ (1,731)</td>
<td>$ (7,874)</td>
<td>$ (24,424)</td>
<td>$ 95,485</td>
<td>22%</td>
</tr>
<tr>
<td>UHE</td>
<td>$ (2,062)</td>
<td>$ (9,285)</td>
<td>$ (4,438)</td>
<td>$ 15,685</td>
<td>4%</td>
</tr>
<tr>
<td>Harding</td>
<td>$ (358)</td>
<td>$ (2,028)</td>
<td>$ (3,042)</td>
<td>$ 8,061</td>
<td>2%</td>
</tr>
<tr>
<td>Primary Care Network</td>
<td>$ (553)</td>
<td>$ (2,798)</td>
<td>$ (194)</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>Specialty Care Network</td>
<td>$ -</td>
<td>$ (858)</td>
<td>$ 7,517</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>Sub-Total</td>
<td>$ (17,310)</td>
<td>$ (80,069)</td>
<td>$ (103,263)</td>
<td>$ 425,968</td>
<td>100%</td>
</tr>
<tr>
<td>Shared Services/Elm</td>
<td>$ (1,878)</td>
<td>$ 80,070</td>
<td>$ 103,262</td>
<td>-</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>$ (19,188)</td>
<td>$ 80,070</td>
<td>$ 103,262</td>
<td>-</td>
<td>100%</td>
</tr>
</tbody>
</table>

Transfer to the College of Medicine and the Comprehensive Cancer Center
An additional flow of funds between The James and the Health System is a transfer of monies from The James to the College of Medicine for faculty support, and to the Comprehensive Cancer Center for program support.

The amount of this support estimated for the 2007 fiscal year is almost $36 million. Although it appears that the faculty and other programs supported, including the Comprehensive Cancer Center, are considered part of the College of Medicine, it also appears that the vast majority of these support dollars are in fact earmarked for cancer-related items. As the table below indicates, approximately 90% of the monies transferred from The James to the Health System in this category are for cancer-related support, clearly indicating that if the Health System did not “house” or otherwise provide these faculty or programs, The James would need to provide them. Thus, this transfer for “College of Medicine support” appears to largely benefit The James, or at least the overall cancer program at OSU.
### V. FUNDS FLOW ANALYSIS

#### JAMES CANCER HOSPITAL AND SOLUCY RESEARCH INSTITUTE

**COLLEGE OF MEDICINE SUPPORT**

<table>
<thead>
<tr>
<th>8 IN 2003</th>
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</table>

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HCC - Cancer Genetics</strong></td>
<td>21,743</td>
<td>18,782</td>
<td>17,841</td>
<td>17,923</td>
<td>18,000</td>
<td>18,000</td>
<td>17,923</td>
<td>17,841</td>
</tr>
<tr>
<td><strong>HCC - Peds</strong></td>
<td>3,200</td>
<td>3,125</td>
<td>3,075</td>
<td>3,025</td>
<td>2,975</td>
<td>2,925</td>
<td>2,875</td>
<td>2,825</td>
</tr>
<tr>
<td><strong>HCC - dia/Chapels</strong></td>
<td>4,462</td>
<td>4,500</td>
<td>4,538</td>
<td>4,576</td>
<td>4,614</td>
<td>4,652</td>
<td>4,690</td>
<td>4,728</td>
</tr>
<tr>
<td><strong>HCC - Clinical</strong></td>
<td>11,353</td>
<td>11,384</td>
<td>11,415</td>
<td>11,446</td>
<td>11,477</td>
<td>11,508</td>
<td>11,539</td>
<td>11,570</td>
</tr>
</tbody>
</table>

#### Comprehensive Cancer Center

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CCC - Infrastructure Support</strong></td>
<td>61,446</td>
<td>61,446</td>
<td>61,446</td>
<td>61,446</td>
<td>61,446</td>
<td>61,446</td>
<td>61,446</td>
<td>61,446</td>
</tr>
<tr>
<td><strong>CCC - Faculty Bids Funding</strong></td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
</tr>
<tr>
<td><strong>CCC - Subsidy Programs</strong></td>
<td>4,462</td>
<td>4,462</td>
<td>4,462</td>
<td>4,462</td>
<td>4,462</td>
<td>4,462</td>
<td>4,462</td>
<td>4,462</td>
</tr>
<tr>
<td><strong>CCC - Wileman Laser</strong></td>
<td>1,419</td>
<td>1,419</td>
<td>1,419</td>
<td>1,419</td>
<td>1,419</td>
<td>1,419</td>
<td>1,419</td>
<td>1,419</td>
</tr>
<tr>
<td><strong>CCC - Stirling Loving</strong></td>
<td>851</td>
<td>851</td>
<td>851</td>
<td>851</td>
<td>851</td>
<td>851</td>
<td>851</td>
<td>851</td>
</tr>
<tr>
<td><strong>CCC - Biotechnology Lab</strong></td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>CCC - Other</strong></td>
<td>22,238</td>
<td>22,238</td>
<td>22,238</td>
<td>22,238</td>
<td>22,238</td>
<td>22,238</td>
<td>22,238</td>
<td>22,238</td>
</tr>
<tr>
<td><strong>Vascular Surgery - GI / Breast</strong></td>
<td>3,500</td>
<td>3,500</td>
<td>3,500</td>
<td>3,500</td>
<td>3,500</td>
<td>3,500</td>
<td>3,500</td>
<td>3,500</td>
</tr>
<tr>
<td><strong>Oncology</strong></td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
</tr>
<tr>
<td><strong>Hematology</strong></td>
<td>21,136</td>
<td>21,136</td>
<td>21,136</td>
<td>21,136</td>
<td>21,136</td>
<td>21,136</td>
<td>21,136</td>
<td>21,136</td>
</tr>
<tr>
<td><strong>Hematology</strong></td>
<td>3,808</td>
<td>3,808</td>
<td>3,808</td>
<td>3,808</td>
<td>3,808</td>
<td>3,808</td>
<td>3,808</td>
<td>3,808</td>
</tr>
<tr>
<td><strong>Internal Medicine - Gastroenterology</strong></td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td><strong>Neurosurgery</strong></td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>Orthopaedics</strong></td>
<td>320</td>
<td>320</td>
<td>320</td>
<td>320</td>
<td>320</td>
<td>320</td>
<td>320</td>
<td>320</td>
</tr>
<tr>
<td><strong>Other Miscellaneous</strong></td>
<td>466</td>
<td>466</td>
<td>466</td>
<td>466</td>
<td>466</td>
<td>466</td>
<td>466</td>
<td>466</td>
</tr>
<tr>
<td><strong>Otolaryngology</strong></td>
<td>2,109</td>
<td>2,109</td>
<td>2,109</td>
<td>2,109</td>
<td>2,109</td>
<td>2,109</td>
<td>2,109</td>
<td>2,109</td>
</tr>
<tr>
<td><strong>Surgery</strong></td>
<td>2,888</td>
<td>2,888</td>
<td>2,888</td>
<td>2,888</td>
<td>2,888</td>
<td>2,888</td>
<td>2,888</td>
<td>2,888</td>
</tr>
<tr>
<td><strong>Thoracic Surgery</strong></td>
<td>1,642</td>
<td>1,642</td>
<td>1,642</td>
<td>1,642</td>
<td>1,642</td>
<td>1,642</td>
<td>1,642</td>
<td>1,642</td>
</tr>
<tr>
<td><strong>Urology</strong></td>
<td>42,149</td>
<td>42,149</td>
<td>42,149</td>
<td>42,149</td>
<td>42,149</td>
<td>42,149</td>
<td>42,149</td>
<td>42,149</td>
</tr>
<tr>
<td><strong>Cancer - related (directly)</strong></td>
<td>120,517</td>
<td>120,517</td>
<td>120,517</td>
<td>120,517</td>
<td>120,517</td>
<td>120,517</td>
<td>120,517</td>
<td>120,517</td>
</tr>
<tr>
<td><strong>Percent cancer-related</strong></td>
<td>89%</td>
<td>94%</td>
<td>93%</td>
<td>88%</td>
<td>84%</td>
<td>92%</td>
<td>90%</td>
<td>95%</td>
</tr>
</tbody>
</table>

The James has been a financially successful operation for a number of years. This is due to many factors (most significantly growth in volume), but two very important factors are:

- the PPS Exempt status which provides for more favorable reimbursement from government payors, and
- the ability to purchase services from the OSU Health System at actual costs, which are significantly less than what The James would have to pay for similar services in an open market, or if The James needed to provide those services on its own.

The next section of this report examines in more detail the nature of the PPS Exemption and the cumulative effect of the reimbursement and expense structure in existence at OSU Medical Center.
V. FUNDs FLOW ANALYSIS

Cumulative Benefits

As the previous section briefly touched upon, there is a benefit to The James because of fundamental differences in the way it is able to pay for certain services (the shared services and purchased patient services allocations discussed previously) and the way it is reimbursed by Medicare and Medicaid for its allowable costs. The OSU Health System cost accounting methodology and how it applies to The James was discussed in the preceding section; a better understanding of the nature of the PPS Exemption and reimbursement will help clarify the point.

PPS Exemption for Cancer Hospitals

In 1983, when Congress enacted what is now CMS implemented the Prospective Payment System (PPS), an exception to the new DRG- or case-based reimbursement was made for certain cancer hospitals. The exception essentially permitted the designated cancer hospitals to continue to be reimbursed by Medicare and Medicaid for their reasonable costs of providing inpatient care. This exception was due in large part to the sometimes very costly nature of providing innovative cancer care to patients, as well as the sometimes very costly investments in research and new technology that the cancer hospitals regularly undertake in battling cancer.

Moreover, part of the nature of PPS is to allow general hospitals to offset losses in certain costly services or programs with gains from more profitable services or programs, and the DRG-based system generally works in this manner. The cancer hospitals do not have the ability to offset the costly cancer services with more profitable DRGs, because they generally do not treat patients that would fall into those more profitable categories. Therefore, the justification to allow these hospitals to be reimbursed for their reasonable costs seems equitable. It should also be noted that Congress only extended this exemption from the PPS reimbursement methodology to a limited number of cancer hospitals, and there are in fact only ten such cancer hospitals in the country that meet the criteria for this more favorable reimbursement methodology (this group is known as “The Alliance of Dedicated Cancer Centers” – see map in next section for listing).

The cancer hospitals are reimbursed by the Medicare Program for providing care to inpatients on a reasonable cost basis, subject to the TEFRA target amounts derived from their historical operations. Under this system, each hospital has an annual rate-of-increase ceiling that limits the reimbursable operating costs in a given year to the reasonable costs incurred during a base year, adjusted to reflect general cost inflation. Congress authorized the Cancer Centers to be reimbursed under the TEFRA system because the inpatient payment system it had established for acute care hospitals [PPS] failed to provide equitable reimbursement for the costs associated with the provision of innovative care to cancer patients. The TEFRA system was intended to protect the Cancer Centers from the catastrophic losses they would have sustained if they were reimbursed under PPS. The Alliance of Dedicated Cancer Centers, Request for TEFRA Relief, April 4, 2007, pages 1-2.

James’ Expense Allocations and Medicare Cost Reports

As explained in the previous section, The James “buys” services from the OSUHS at actual cost, as determined by the OSUHS cost accounting system. It is our understanding that, under the “reasonable cost reimbursement” methodology by which The James receives payment from the Medicare program, the costs that are allowed by CMS for this purpose are determined by an entity’s Medicare Cost Report. This annual filing is intended to report to CMS all those costs and expenses incurred by a hospital in the provision of its patient care and other services; CMS then utilizes this report to determine those costs which it will allow for reimbursement (subject to the aforementioned TEFRA limitations, which ultimately put a limit or cap on the amount of cost reimbursement through CMS).

It is our further understanding that the OSUHS had numerous discussions and interactions with CMS regarding what expenses to report for The James’ PPS Exemption reimbursement purposes. Apparently the definition of
what costs are reimbursable differs from the actual costs incurred by The James via the OSUHS cost accounting methodology. That is, it has been reported that CMS would not “accept” the costs allocated to The James under the shared services and patient purchased services as described earlier. Rather, CMS apparently requested that The James prepare and file its own Medicare Cost Report showing its share of OSUHS’s “allowable” costs; based on the percentage of Medicare and Medicaid patients for The James, CMS then reimbursed The James for those patients in accordance with the costs so reported on The James’ Medicare Cost Report.

Thus, because of differences in reporting costs to CMS on the OSUHS Medicare Cost Report, and the subsequent allocation of those costs to The James, The James has been able to receive reimbursement for Medicare-allowed costs that is different than the actual cost of the services it has been allocated from the OSUHS. It is our further understanding that this methodology has been in place for many years, and that CMS apparently understands it and finds it acceptable. This may be in part due to the TEFRA limitations imposed on the amount of reimbursement The James receives from CMS.

In summary, it is our understanding that:

- the Medical Center allocates “actual” costs to James for the services it uses/purchases (based on internal cost accounting system), and
- these costs are recorded on the financial statements as James' expenses; and
- for cost reimbursement purposes (PPS exemption), the James is allocated "its share" of costs from the OSUHS Medicare Cost Report (which are higher than the “actual” costs determined under the cost accounting system), and
- these expenses are entered onto the James' own Medicare Cost Report; and
- this then becomes the basis upon which the James' Medicare and Medicaid reimbursements are determined.
This concept may be easier to understand as shown in the table and notes below, provided by the OSUHS Finance Department:

The total of the two “Differences” columns in the first table above adds up to $102,617,381. Historically, about 30% of The James’ patients are Medicare recipients and about 9% are Medicaid patients. CMS reimburses The James under the PPS Exemption for these patients, so approximately 40% of the total “differences” shown above, or approximately $40 million, represents the excess of CMS reimbursement over the actual costs The James incurred to provide services to these patients. Given the TEFRA limits that are in place, the total estimated benefit to The James is estimated to range between $25 million and $35 million.

**Value of the PPS Exemption**

As can be seen, these differences generally favor The James, but not always. In addition, the above amounts reflect “profit” associated with this situation (excess of revenues or reimbursement received over expenses incurred). The OSUHS Finance Department has provided the following summary of the potential difference in revenue associated with this situation, i.e., prior to deducting expenses.

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Medicare</td>
<td>$4,570,267</td>
<td>Difference between James Medicare TEFRA Rate and UH DRG Reimbursement.</td>
</tr>
<tr>
<td>Outpatient Medicare</td>
<td>-$</td>
<td>Both Hospitals are Reimbursed under essentially the same Method, APCs.</td>
</tr>
<tr>
<td>Inpatient Medicaid</td>
<td>$4,109,662</td>
<td>Difference between James Medicaid Cost-to-Change Ratio and UH DRG Reimbursement.</td>
</tr>
<tr>
<td>Outpatient Medicaid</td>
<td>$1,309,120</td>
<td>Difference between James Medicaid Cost-to-Change Ratio and UH Fee Schedule Reimbursement.</td>
</tr>
<tr>
<td>Government PPS Exemption Benefit for James Cancer Hospital</td>
<td>-$10,983,552</td>
<td></td>
</tr>
</tbody>
</table>

Thus, the estimated direct impact on revenue is that The James receives nearly $11 million per year more than it would have if it were under PPS. In addition, it has been estimated that (a) the TEFRA limit or cap mentioned earlier was approximately $5 million (essentially meaning that if the limit were not imposed, or if it changes as The James has formally requested of CMS), that an additional $5 million in revenue might be realizable) and (b) the non-Medicare/Medicaid payors also reimburse The James at a higher rate than they likely would be able to negotiate due to the “intangible” value of the PPS Exemption; this “additional revenue” associated with PPS exemption has been estimated as high as $15 million per year (no calculations or schedules supporting this claim were produced or reviewed as part of this project). It is our understanding that, subsequent to the review, CMS
V. Funds Flow Analysis

indicated that TEFRA limit or cap relief of approximately $900,000 per year would be granted to The James (versus the $5 million requested).

At the same time, it should be noted that, because of the PPS Exemption, The James is not currently entitled to a significant benefit that other cancer programs benefit from – the “340(b) program.” In summary, this program provides a discount on drugs purchased for outpatient use, based on the level of Medicaid patients served by the hospital. While significantly more complicated than described here, it has been estimated that annual savings of between $5 and $9 million might be available under this program. While this would not “make up for” the loss of PPS Exemption, should that unlikely event occur, it is worthy to note that the pure economic impact of that eventuality would certainly be lessened.

The James’ Historical “Treatment” of Cumulative Differences

For accounting purposes, both the OSUHS and The James have recorded the accumulated difference as part of The James’ “retained earnings” or cumulative “cash reserves.” This treatment has become a point of some contention between The James and the OSUHS, as both feel an “entitlement” to counting these monies. The James feels it is “theirs” as their PPS Exemption is directly related to the favorable reimbursement, while the Health System feels that the primary reason there is an excess at all is because of the accounting methodologies utilized in both the cost accounting and the Medicare Cost Reporting, which are creatures of the Health System’s accounting and finance areas.

It appears that the approximately $40 million differential in “contested” retained earnings could be perceived, in itself, as a benefit to the OSUHS and The James. As the accounting system currently stands and as the entities currently form a unified academic medical center the monies are held within the coffers of The James. If the accounting system were adjusted such that the internal charges levied against The James for shared services were in accordance with the reimbursements received for the services by The James, the monies in question would reside in the coffers of the Health System. Regardless of the system employed, the same amount of money would be available to the Academic Medical Center as a whole for capital initiatives and debt service.

The Academic Medical Center benefits from the reputation of The James in its pursuit of a top quartile ranking. In turn, The James benefits from the size and reputation of The Ohio State University Medical Center in furthering its status on a national stage. Additionally, grant monies received from the NIH by OSUHS researchers outside of the cancer program increase the overall tally enhancing the reputation of both entities. From a reputation standpoint, the relationship is a symbiotic one.

Over the past 17 years, The James has indicated that it has “contributed” approximately $1.2 billion to the OSUHS; this figure represents the accumulation of (a) its expenses or allocation for services provided by other departments within the OSUHS (shared services and purchased patient services), (b) its support for the College of Medicine and the Primary Care and Specialty Care Networks, and (c) the University overhead allocation.
While there is no doubt that this schedule is accurate, there is generally quid pro quo in the sense that services have been purchased, The James generally receives significant benefits from supporting the College of Medicine, and every department of The Ohio State University bears some of the general overhead burdens of the University. Moreover, as explained above, The James (and all entities of the Health System) benefit from the economies of scale and efficiencies gained from the shared services system in place at the OSUHS (meaning that the total amount of services that The James has purchased over the past 17 years would very likely have been significantly greater without the OSUHS systems in place, or if The James needed to “buy” these services at “market” rates).

In addition, as explained earlier, the amounts that The James has spent for the services it has purchased have been key to its ability to accumulate nearly $40 million in cost/reimbursement differences. That is, if The James had to pay higher, more market-like rates for the services purchased through the OSUHS, the difference between its expenses and its reimbursement would most likely not be as significant, and its accumulation of cash reserves would not be so large. This is particularly true when taking into account that, under a system where The James would pay higher rates for purchased services, it would also presumably be responsible for its own capital purchasing and expenditures (whereas currently the OSUHS makes capital outlays, a further benefit to The James and the other members of the Health System). This would further diminish any cash reserves or operating margins The James would generate “on its own.”

<table>
<thead>
<tr>
<th>Year</th>
<th>Pur Svc*</th>
<th>Shrd Svs</th>
<th>MC Inv</th>
<th>PCN/SCN**</th>
<th>Univ OH</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY90-91</td>
<td>23,688</td>
<td></td>
<td></td>
<td>1,363</td>
<td></td>
<td>25,051</td>
</tr>
<tr>
<td>FY91-92</td>
<td>25,746</td>
<td></td>
<td></td>
<td>2,064</td>
<td></td>
<td>27,810</td>
</tr>
<tr>
<td>FY92-93</td>
<td>29,883</td>
<td></td>
<td>1,316</td>
<td>3,118</td>
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<td>34,317</td>
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<tr>
<td>FY93-94</td>
<td>31,406</td>
<td></td>
<td>1,433</td>
<td>3,113</td>
<td></td>
<td>35,952</td>
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<td>FY94-95</td>
<td>34,984</td>
<td></td>
<td>1,671</td>
<td>3,139</td>
<td></td>
<td>39,794</td>
</tr>
<tr>
<td>FY95-96</td>
<td>32,109</td>
<td></td>
<td>3,016</td>
<td>3,090</td>
<td></td>
<td>38,215</td>
</tr>
<tr>
<td>FY96-97</td>
<td>34,752</td>
<td></td>
<td>5,869</td>
<td>2,992</td>
<td></td>
<td>43,613</td>
</tr>
<tr>
<td>FY97-98</td>
<td>37,482</td>
<td></td>
<td>4,485</td>
<td>2,909</td>
<td></td>
<td>44,876</td>
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<tr>
<td>FY98-99</td>
<td>42,529</td>
<td></td>
<td>5,417</td>
<td>3,298</td>
<td></td>
<td>51,244</td>
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<tr>
<td>FY99-00</td>
<td>46,178</td>
<td></td>
<td>3,547</td>
<td>2,775</td>
<td></td>
<td>52,500</td>
</tr>
<tr>
<td>FY00-01</td>
<td>39,381</td>
<td></td>
<td>13,072</td>
<td>2,730</td>
<td></td>
<td>59,386</td>
</tr>
<tr>
<td>FY01-02</td>
<td>48,667</td>
<td>18,612</td>
<td>8,000</td>
<td>2,910</td>
<td></td>
<td>82,189</td>
</tr>
<tr>
<td>FY02-03</td>
<td>60,373</td>
<td>15,250</td>
<td>10,664</td>
<td>3,121</td>
<td></td>
<td>80,954</td>
</tr>
<tr>
<td>FY03-04</td>
<td>63,685</td>
<td>16,170</td>
<td>18,877</td>
<td>3,896</td>
<td></td>
<td>105,808</td>
</tr>
<tr>
<td>FY04-05</td>
<td>71,224</td>
<td>16,712</td>
<td>28,471</td>
<td>4,379</td>
<td></td>
<td>123,839</td>
</tr>
<tr>
<td>FY05-06</td>
<td>85,564</td>
<td>19,644</td>
<td>28,883</td>
<td>5,030</td>
<td></td>
<td>141,905</td>
</tr>
<tr>
<td>FY06-07***</td>
<td>96,312</td>
<td>21,144</td>
<td>35,345</td>
<td>TBD</td>
<td></td>
<td>158,825</td>
</tr>
</tbody>
</table>

**Totals** $803,963 $120,604 $161,197 $9,503 $55,951 $1,151,218

Note: * Purchased service payment amounts are based on the direct cost plus an allocation of fixed overhead for the respective service provided.
** Prior to FY03 Primary Care Network (PCN) support was included in purchased services. Speciality Care Network (SCN) began in FY03 with the inclusion of Anesthesiology.
*** Based on 9 months annualized; PCN/SCN support amount to be determined at year-end.
V. FUNDS FLOW ANALYSIS

Conclusion

In summary, the difference between what it costs the OSUHS/James to produce the services necessary to provide care to cancer patients and the favorable reimbursement to which The James is entitled under its PPS Exemption is really attributable to “both sides.” Without the economies of scale and cost savings associated with a System-wide network of overhead and patient services provided by the OSUHS, and without the favorable reimbursement methodology allowed to The James, the amount of any difference between what is collected and what it costs to provide services would be less; it is conceivable that the costs could exceed the revenues.

Historically, the OSUHS has been viewed and acted as a single, large academic medical center with many and varied components to it and the accumulated economic benefits gained over the years were available to the entire System to be utilized and applied in the most prudent and appropriate way(s) to enhance the overall reputation, progress and growth of the System as a whole. Leadership of Medical Center has recognized what they view as a disconnect in the allocation methodology for some time, but chose not to address the disconnect because the economic benefits accrued to the entire System. At the same time, leadership of The James believed that this use of what they view as their profits for other programs limited the potential of the Cancer Program. It is apparently this difference in opinion that contributed to the current discord.

It seems clear that the relationship between The James and the OSUHS is mutually beneficial, with a purchaser of services getting what amounts to a discount, a member of the overall System receiving greater revenues than some of its peers, and other departments receiving additional dollars for faculty, research and other support, all while boosting the overall reputation and prestige of The Ohio State University. While the legal environment regarding the PPS exemption may ultimately lead to a change in governance structure, steps should be taken to insure the clear financial benefits of shared services and other synergies between the James and the Medical Center are retained.

Benchmark Review

An assessment was performed of key comparators to The James across multiple metrics. Facilities selected as part of the comparison set were peer PPS-Exempt cancer centers including: Fred Hutchinson Cancer Research Center, City of Hope Cancer Center, M.D. Anderson Cancer Center, Memorial Sloan Kettering Cancer Center, Roswell Park Cancer Center, Dana-Farber Cancer Institute, Fax Chase Cancer Center and H. Lee Moffitt Cancer Center and Research Institute. The locations of these facilities can be seen in the map below which was taken from “The Alliance of Dedicated Cancer Centers Request for TEFRA relief”. Benchmarks reviewed were derived from Solucient Providerview™ and include both economic gauges of performance and facility measurements. It should be noted that there are differences between all of these institutions and that these benchmarks should only be acted upon after careful consideration of the causes for the variance from benchmark.
Across major revenue and expense categories The James fell solidly within the range of the peer group. Though The James was below average across all categories, the high end of the range demonstrated in the chart below is dominated in volume by two peers in particular (M.D. Anderson and Memorial Sloan Kettering). If these two facilities are removed from the average, The James demonstrates greater than average admissions and revenue with a total expense that approximates the average. Operating profit margin remains nearly identical to that depicted in the chart in relation to the average.

<table>
<thead>
<tr>
<th>Peer Range</th>
<th>James</th>
<th>Peer Average</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admissions--Total Hospital--All Patients</td>
<td>7,439</td>
<td>7,809</td>
<td>444</td>
<td>21,133</td>
</tr>
<tr>
<td>Average Length of Stay--Acute Care</td>
<td>6.97</td>
<td>7.86</td>
<td>5.43</td>
<td>12.65</td>
</tr>
<tr>
<td>Total Patient Revenue (millions)</td>
<td>$582</td>
<td>$845</td>
<td>$211</td>
<td>$2,367</td>
</tr>
<tr>
<td>Net Patient Revenue (millions)</td>
<td>$297</td>
<td>$454</td>
<td>$142</td>
<td>$1,310</td>
</tr>
<tr>
<td>Total Operating Expense (millions)</td>
<td>$277</td>
<td>$521</td>
<td>$138</td>
<td>$1,308</td>
</tr>
<tr>
<td>Operating Profit Margin (%)</td>
<td>6.8%</td>
<td>8.2%</td>
<td>-5.2%</td>
<td>28.6%</td>
</tr>
</tbody>
</table>

*Source: Solucient Providerview 2005*
V. FUNDS FLOW ANALYSIS

Of significant interest is that the “low” end of the range indicates a PPS-Exempt hospital that showed an operating loss for the period under review. This would appear at odds with the concept that being exempt from PPS protects the cancer hospital from losing money, and further indicates that even these “more-favored” hospitals are subject to the risks of expenses exceeding revenues.

Across FTE and Salary expense categories The James demonstrated efficiency at the superior end of the peer range across all categories, as indicated below. This favorable position is most likely the beneficial impact of the shared and purchased services arrangement.

<table>
<thead>
<tr>
<th>Peer Range</th>
<th>James</th>
<th>Peer Average</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expense per Adjusted Admission</td>
<td>$19,758 $31,890 $12,159 $58,884</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expense per Adjusted Patient Day</td>
<td>$2,833 $3,851 $2,219 $6,940</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTEs per 100 Adjusted Admissions</td>
<td>7.6 18.7 6.5 31.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTEs per Adjusted Average Daily Census</td>
<td>4.0 8.9 4.3 14.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries &amp; Benefits % of Operating Expense</td>
<td>21% 44% 21% 82%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salary &amp; Benefits per FTE</td>
<td>$53,651 $67,665 $53,595 $100,600</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Solucient Providerview 2005

The James’ total assets are significantly below the peer average; however, this difference drops from a factor of approximately 3.75 to approximately 1.6 with the removal of the two largest peers (M.D. Anderson and Memorial Sloan Kettering). However, The James’ return on assets is shown to be comparable to the peer group. Additionally, The James is on the high end of the peer group in the percentage of square feet allocated to patient care and on the low end of the peer range for the amount of accumulated depreciation for building and fixtures. Typically this would suggest a relatively newer facility, but this may also be a factor of the OSUHS owning certain equipment or technology that would not appear on The James’ books, which may not be the case within the peer group.

<table>
<thead>
<tr>
<th>Peer Range</th>
<th>James</th>
<th>Peer Average</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets (millions)</td>
<td>$198  $739  $73  $2,603</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Assets (%)</td>
<td>11%   11%  3%  37%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Care–Square Feet (%)</td>
<td>68%   34%  10%  54%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings &amp; Fixtures Accum Deprec (millions)</td>
<td>$11  $183  $5  $604</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Solucient Providerview 2005

In reviewing the above metrics it appears that The James falls soundly within the range of the peer group or, as in the case of FTE and salary expense categories, is performing exceptionally well in comparison. This is true given existing facility conditions and corroborates the benefit that the James receives from the purchased and shared services arrangements.
VI. CONCLUSIONS

Medical Center Master Facility Plan

The analysis and documentation supporting the current Medical Center Master Facilities Plan is generally consistent with what would be expected at this point in the implementation of a major capital project.

- The throughput analysis/assumptions are comparable to Hammes Company experience. While there are some areas where they vary from benchmarks, these variances should not generate significant premiums/savings in total square footage. The greater risk in this area relates to the potential impact that volume projections will be greater or less than the original throughput analysis was based upon. To some degree, this is based upon the speed with which the projected Clinical FTEs are recruited and the time required for them to reach anticipated productivity levels.

- The space planned for the major programmatic elements and the project budget are consistent with Hammes Company benchmarks. While some elements are still at a preliminary stage in terms of design, the allowances appear adequate.

- There are some unique aspects to the delivery of this project that relate primarily to its size and State of Ohio regulations. However, it appears that the Medical Center and the University have a project organizational structure and the internal people necessary to manage the complexities. Consensus among the Medical Center and University staff is not complete at this time, but they have a history of working together in the past and should be able to continue on this Project.

- Additionally, a project of this size carries a number of risk factors including implementation, schedule, safety, and escalation risk. Currently, the project budget might be a little light in contingencies, but not to a concerning level.

A more substantial issue relates to the current status of the project schedule. The Master Facility Plan assumed a “fast track” schedule that depended upon the careful coordination of the implementation process. While possible to meet when developed, the project schedule is currently more than 130 days behind. Much of this delay could be recouped through an efficient design process, but a lack of consensus on the overall direction of the project, calls into question whether that catch up can be achieved. This delay in the schedule risks the Project incurring additional escalation costs which will reduce the scope and program that can be achieved for the same budget. Additionally, the delay in the schedule risks achieving the strategic objectives and revenue growth included in the business plan.

The most significant issue with the Master Facility Plan relates to the lack of consensus regarding the scope of Phase I. The current plan represents a series of compromises that attempts to balance the requirements to achieve top-ten status in the Cancer Program and top quartile status for the Medical Center. While not in conflict in theory, these two goals are competing for scarce capital dollars during Phase I. The Cancer Program feels that the current plan impairs their ability to achieve top ten status, especially in relationship to the latest version of Project Cancer. However, implementation of the complete cancer solution would require reallocation of capital dollars from the other Signature Programs, many of which feel the current plan is less than ideal.

All of the compromises could be addressed in a Phase II and/or through the re-weighting of the priorities implied in the current Phase I. However, it should be noted that resolving these conflicts will cost time, which ultimately impacts the scope that can be achieved (due to escalation). Additionally, it should be noted that some project components will necessarily occur in a Phase II, with the result that some key constituents will likely be dissatisfied with a revised facility solution.
Funds Flow Analysis

It seems clear that the funds flow relationship between The James and the OSUHS is mutually beneficial, with a purchaser of services getting what amounts to a discount, the seller of services able to boost utilization, a member of the overall System receiving greater revenues than some of its peers, and other departments receiving additional dollars for faculty, research and other support, all while boosting the overall reputation and prestige of The Ohio State University. While the “political” environment of late has many concerned that this relationship could change, it appears there are no truly compelling reasons why it needs to (unless the corporate governance/structure changes discussed previously should necessitate it); and therefore, steps should be taken to ensure that the relationship does not in fact change.