

ORANGE COUNTY  
BOARD OF COMMISSIONERS

ACTION AGENDA ITEM ABSTRACT

Meeting Date: November 11, 2002

Action Agenda  
Item No. 5

**SUBJECT:** Construction Management

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**DEPARTMENT:** Purchasing and Central Services

**PUBLIC HEARING:** (Y/N)

Yes  No

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**ATTACHMENT(S):**

Memorandum from June 11, 2002  
Work session on the same topic

**INFORMATION CONTACT:**

Pam Jones (919) 245-2652

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**TELEPHONE NUMBERS:**

Hillsborough 732-8181

Chapel Hill 968-4501

Durham 688-7331

Mebane 336-227-2031

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**PURPOSE:** To consider construction management and how it may fit into projects constructed by Orange County.

**BACKGROUND:** The Board has previously discussed the merits of retaining a construction manager for County projects. The attached material explores how this might be accomplished.

**FINANCIAL IMPACT:** Financial impact would be evaluated at such time that a preferred approach is cited.

**RECOMMENDATION(S):** The Manager recommends that the Board receive the information and provide direction to staff regarding how it desires to pursue project management.

**Memorandum**

**To:** County Commissioners

**From:** Pam Jones, Director of Purchasing and Central Services

**RE:** Construction Management for County-Funded Projects

**Date:** June 4, 2002

The Board has previously requested that information regarding construction management options for County-funded projects be provided. The attached information is provided so that it may be considered in the context of projects being considered as part of the 2002-2012 Capital Investment Plan.

The attached packet of information includes the following information for consideration during the budget work session on June 11, 2002:

1. The list of potential tasks for a construction manager
2. A potential selection process for a construction manager
3. June 30, 1999 meeting documents: (Proposed a contract with PES, a consulting firm, to VE 2 schools, Smith Middle and Pathways Elementary)
  - a. The abstract, which includes a Scope of Work statement from PES, the recommended value engineering firm; and
  - b. Minutes
    - i. Note: BOCC action was to not endorse the PES contract that would have provided value engineering to Smith Middle School and Pathways Elementary Schools. The cost was \$39,295 per school.; and
    - ii. To pursue "phase two" of value engineering (the result was CEFI)
4. December 7, 1999 meeting documents: (Cost Efficient Facilities Initiatives (CEFI) report was given at this meeting.
  - a. The abstract, which included the CEFI report
  - b. Minutes
    - i. Note: The BOCC approved the CEFI concept and instructed the that this discussion should be held with the School Boards at the Joint meeting on December 13, 1999.
5. December 13, 1999 Joint BOCC/School Board meeting (CEFI discussed)
  - a. Minutes
    - i. Note: No reference to decisions by the Board

Potential tasks of a construction manager (CM):

The construction manager (CM) would:

1. Be retained prior to the design consultant being selected.
2. Participate in the selection of the design consultant team.
  - a. Coordinate with Purchasing Director to negotiate design firm contract.
3. Conduct all meetings among the stakeholders and the design firm during the design formulation process.
4. Review drawings prepared by the designers and suggest modifications/alternatives that might be more economically/functionally advantageous to the County. Design modifications would be based on a life cycle cost analysis to the extent practicable.
5. Prepare and/or coordinate with designer to prepare information needed for regulatory approvals.
  - a. Attend meetings as may be required in the regulatory approval process.
6. Review construction bids and coordinates with Purchasing Director to prepare award materials for Board approval.
7. Prepare construction contracts for contractors.

During construction the CM will:

8. Provide intensive on-site daily observation for the amount of time appropriate for the stage of construction. For example, the CM would need to be on site at all times during periods when concrete is being poured, structural steel is being set, etc., but may not need to be on site 8 hours per day during a period where they are painting walls or laying carpet. As a rule of thumb, they should be on site anytime the work being accomplished will not be directly observable by the next workday.
9. CM would observe methods and means of construction and coordinate with the designer to correct any deficiencies. Note: It will be important to ensure a well-defined reporting protocol for these instances to minimize conflict among the various parties.
10. CM represents the county at all construction related meetings between designer and contractors.
11. CM maintains all project related records; e.g. cost, schedule, etc.
12. Handles requests for change orders.
13. Reviews and approves all shop drawings.
14. Provides "clerk of the works" function, i.e. is the know all person on the project, familiar with all aspects.
15. Provides monthly reports to the County, identifying all critical project components and their status (e.g. cost/schedule, predicting "bumps in the road", etc).

There are a lot of detail tasks for which the CM would also be responsible, but we can develop those when the decision is made to move forward.

**A potential selection process for retaining the CM could be as follows:**

1. A scope of work for the CM is developed, including those tasks listed above, as well as others that will be obtained through various comments from the Board and others.
2. An RFP is prepared and interested firms are solicited. (As I understand it, there are many firms now interested in this type of work, particularly in view of the recent legislative changes in Purchasing Laws, effective January 1, 2002.)
3. A selection team representing at least the following interests is formed:
  - a. County Commissioner
  - b. Purchasing Director
  - c. An architect\*\*
  - d. A contractor\*\*

\*\*These representatives would be able to ask questions and pose situations that the CM would be expected to deal with on site. They would be able to raise issues with which the County staff and Commissioners have limited experience. Their expertise would also be valuable in assessing the answers given by the potential CM candidates.
4. The resulting recommendation would be presented to the full BOCC for consideration.
5. The CM would be hired on a project-by-project basis to ensure that the County had access to the best skill set needed for a specific job.

**ORANGE COUNTY  
BOARD OF COMMISSIONERS**

**ACTION AGENDA ITEM ABSTRACT**

**Meeting Date:** June 30, 1999

**Action Agenda  
Item No. 9-d**

**SUBJECT:** Value Engineering Consultant Selection

**DEPARTMENT:** Purchasing & Central Services

**PUBLIC HEARING:** (Y/N)

No

**ATTACHMENT(S):**

Scope of work statement from PES  
Cost proposal

**INFORMATION CONTACT:**

John Link, extension 2300  
Paul Thames, extension 2300  
Pam Jones, extension 2652

**TELEPHONE NUMBERS:**

**Hillsborough** 732-8181  
**Chapel Hill** 968-4501  
**Durham** 688-7331  
**Mebane** 336-227-2031

**PURPOSE:** To consider authorizing County staff to complete negotiations on an agreement with Pacific Environmental Services (PES) to conduct constructibility reviews for two schools; and to endorse a second phase of the selection process for a value engineering firm.

**BACKGROUND:** The desire of the County Commissioners to gain better control of resources associated with construction of County and school facilities is well documented. Value engineering was identified as a potential answer to this issue. As clarification, value engineering is a process whereby each and every aspect of a project is reviewed by an unbiased third party, in collaboration with the other key players, such as the designer and school and/or County personnel.

In order to ensure that value-engineering resources were available for the school projects during the summer, the selection panel went through an intensive process with strident time constraints to bring forward a recommendation for Board consideration. The selection process was enlightening and brought new perspective about what a whole value-engineering program should be and what could be expected of a properly carried out program. The interviewing consultants supported what we have heard before, value engineering is most effective with it is begun early in project development.

Since bidding for the middle school project in Chapel Hill and the elementary school in Orange County is imminent, these projects could not experience the full benefit of value engineering.

If the Commissioners desire to pursue any functional elements of value engineering for these two projects, it is recommended that the Board consider retaining Pacific Environmental Services (PES) to conduct constructibility reviews for the projects. Though not a total value engineering process, constructibility reviews in these two projects can yield significant benefits, according to PES. The scope of work for the constructibility review is attached for your information. It would involve intensive review work for one week and would focus on items that would require minimum design change, but where significant cost savings could be expected. Additionally, the consultant indicates that this

process fine-tunes the specifications, thereby avoiding conflicts with contractors when construction begins. This in turn prevents many change orders during the project. As you are well aware, change orders are usually costly and can add significant time to a project. The constructibility review would therefore minimize the entity's exposure to law suits and claims for additional money after the project is completed.

The cost quoted cited by PES for this work is \$39,295 per school. Although the cost is significant, PES indicates that each project will easily surpass the fee in the amount saved on the project and it will provide a good benchmark for us to more fully understand the benefits of the value engineering process. A complete report detailing the substance of the savings will be provided by PES at the end of the review process.

We believe that there are other firms who we may want to consider in terms of the long term value engineering program established for County and school projects. Because of the ambitious schedule in which the selection process was carried out, it is possible that there are other value-engineering firms who might respond to our request if the timeframe were to be extended. It seems prudent therefore that a second assessment panel be convened in late summer-early fall to consider the results of a second solicitation.

Assuming that the Board approves this plan to acquire value-engineering services, it is further recommended that the Manager communicate to the Superintendents the Board's desire to see value engineering incorporated into the earliest stages of development for any school. This would be particularly important as it respects the design development of the new high school for the Orange County system.

**FINANCIAL IMPACT:** It is recommended that funds to cover costs for this work be appropriated from School Capital Project Fund Balance. Potential project savings will offset the cost of this appropriation.

**RECOMMENDATION(S):** The Manager recommends that the Board authorize County staff to complete negotiations on an agreement with Pacific Environmental Services to conduct constructibility reviews for two schools, whose total cost shall not exceed \$78,590; authorize the Manager to sign the resulting agreement; to endorse a second phase of the selection process for a value engineering firm; and to direct the Manager to communicate to the School Superintendents, the Board's intentions for value engineering on future school projects.

**SCOPE OF WORK**

**ORANGE COUNTY, NC**

**CONSTRUCTABILITY REVIEW/VALUE REVIEW**

A Constructability Review (CR)/Value Review (VR) will be conducted by Pacific Environmental Services (PES) on the final design and shall consist of one team study by a multi-disciplined team of professionals meeting on consecutive work days. The team (hereinafter referred to as the CRT) will conduct a constructability review, concentrating on the appropriateness of the design documents, based on the proposed materials, project location, and current standard construction practices, as well as an abbreviated value review where alternatives will be presented for consideration by the design team that enhance overall value on a life cycle basis (LCC).

The CRT will provide specific recommendations for changes to contract documents to improve constructability, reduce cost without deteriorating quality or function and meet or exceed special scheduling requirements. The CRT shall accomplish the following.

When observed, the team will:

- a. identify conflicts and ambiguities between drawings, plans, and specifications;
- b. identify redundant or excessive technical or administrative requirements;
- c. identify specifications or details that require further clarification;
- d. suggest substitution of simplified construction details, more common construction materials or products;
- e. propose value suggestions substituting equipment, materials, or design modifications for consideration by the design team; and
- f. identify special concerns and potential problem areas.

The services shall be performed by an independent team of professionals, separate and completely independent from the original design team. The CRT shall be composed of persons having professional engineering/architectural registration, and all shall have a minimum of 5 years post registration experience in design, construction administration, or estimating. The typical team makeup will include:

- a. Team Leader/CVS-Professional Engineer
- b. Architect
- c. Structural Engineer
- d. Mechanical Engineer
- e. Electrical Engineer
- f. Construction Estimator
- g. Construction Administrator/Contractor

**h. Participation of Construction Manager supplied by the County of Orange**

Once a final schedule is established, a list of team members and their respective resumes representing the various disciplines to be covered shall be submitted for approval.

Prior to commencing a study, Orange County will forward the following information to the team:

- a. One set of half-size drawings for each team member, and two full-size sets for the team;
- b. One set of specifications for each team member;
- c. Detailed cost estimate (one copy) with one cost summary for each team member;
- d. Design Calculations (mechanical, electrical, etc.) (one set); and
- e. Boring Logs and Soil Reports (two sets).

The CRT shall meet and work in an environment away from their normal workplace in order to avoid interruptions. The meeting room will be provided by Orange County. The follow room requirements are requested:

- lighting and ventilation suitable for prolonged reading, writing, and studying
- large table with cushioned chairs for each team member
- telephone in the meeting room
- provisions for FAX and photocopying services on the premises

A CRT report will be prepared documenting the process and all recommendations developed by the CRT. In addition, one set of plans and specifications will be "red-lined" with any quality review comments/improvements noted by the CRT, and submitted as part of our deliverables.

All reports will be assembled in an orderly fashion and will be short and concise, yet informative enough for decision making. Reports shall be prepared and submitted on 8 1/2" x 11" bond paper and bound under cover appropriately identified. Sketches may be 8 1/2" x 11" or fold-out. Pages shall be sequentially numbered in the lower right hand corner. In addition, we could be available for an optional post study implementation meeting with the design A/E and the County/Chapel Hill to discuss which ideas should be implemented into the project design.

**ORANGE COUNTY, NC  
COST BREAKDOWN**

**CONSTRUCTABILITY/VALUE REVIEW  
Cost for Each Project Study**

**DIRECT LABOR**

	<u>Hours</u>	<u>Rate</u>	<u>Labor Cost</u>
Project Manager/CVS**	96	\$95	\$9,120
Structural Engineer	44	\$80	\$3,520
Mechanical Engineer	44	\$85	\$3,740
Electrical Engineer	44	\$85	\$3,740
Architect	44	\$95	\$4,180
Civil/Cost Engineer	44	\$80	\$3,520
Senior Contractor/Construction Specialist	44	\$90	\$3,960
Typist	48	\$45	\$2,160
<b>TOTAL DIRECT LABOR</b>	<b>408</b>		<b>\$33,940</b>

**\*\*CVS Hours Breakdown**

Prestudy arrangements/coor. with subs	8		
Project study/review	44		
Report writing/proofing – CVS#1	28		
Report editing – CVS#2	12		
Post report response/follow-up	4		
<b>Total CVS Hours</b>	<b>96</b>		

**OTHER DIRECT COSTS**

	<u>Unit</u>	<u>Cost/ Uni</u>	<u>Cost</u>
Meeting room rental – provided by County	s	-0-	-0-
Communication at study – provided by County		-0-	-0-
Ship study materials to CRT – number of copies	7	\$50	\$350
Copy/bind CRT report – total number of reports, 10 to client, including shipping	11	\$50	\$550
Communication – allow	1	\$100	\$100
In-house reproduction – number of copies	1,000	\$0.08	\$80
<b>Travel</b>			
Round-trip – Washington, DC-Raleigh – Airfare	1	\$200	\$200
Local Rental - days	5	\$60	\$300
Mileage: Norfolk to Chapel Hill 5 team members @ 500 miles each	2,500	\$0.3	\$775

Per Diem			
6 team members x 5 days	30	\$100	<u>\$3,000</u>
Total Other Direct Costs			<u>\$5,355</u>

<b>PROJECT COST SUMMARY</b>	
DIRECT LABOR	<b>\$33,940</b>
OTHER DIRECT COSTS	<u><b>\$5,355</b></u>
<b>TOTAL PROJECT COSTS</b>	<b><u>\$39,295</u></b>

**Minutes: BOCC June 30, 1999**

**d. Value Engineering Consultant Section**

The Board considered authorizing County staff to complete negotiations on an agreement with Pacific Environmental Services (PES) to conduct constructibility reviews for two (2) schools, and to endorse a second phase of the selection process for a value engineering firm. Purchasing Director Pam Jones made the presentation. She indicated that the staff has moved rather expeditiously on the selection of a value engineering consultant since both school systems have projects that are imminent and could benefit from the expert advice of a value engineer.

The desire of the Board to gain better control of resources associated with construction of County and school facilities is well documented. Value engineering was identified as a potential answer to this issue. As clarification, value engineering is a process whereby each and every aspect of a project is reviewed by an unbiased third party, in collaboration with the other key players, such as the designer and school and/or County personnel.

In order to assure that value engineering resources were available for the school projects during the summer, the selection panel undertook an intensive process to bring forward a recommendation at this time for Board consideration. The selection process was enlightening, and brought a new perspective about what a whole value engineering program should be, and what could be expected of a properly executed program. The interviewing consultants supported what has been heard before, which is that value engineering is most effective when it is started early in the process of project development. Since bidding for the middle school project in Chapel Hill and the elementary school in Orange County is imminent, these projects would not experience the full benefit of value engineering.

If the Commissioners desire to pursue any functional elements of value engineering for these two (2) projects, it is recommended that the Board consider retaining PES to conduct constructibility reviews for the projects.

The costs quoted by PES for this work is \$39,295.00 per school. Although the costs are significant, PES indicated that each project will easily surpass the fee in the amount saved on the project and it will provide a good benchmark for the County to more fully understand the benefits of the value engineering process. A complete report detailing the substance of the savings will be provided by PES at the end of the review process.

Assuming that the Board approves this plan to acquire value engineering services, it is further recommended that the Manager communicate to the Superintendents the Board's desire to see value engineering incorporated into the earliest stages of development of any school. This would be particularly important as to the design development of the new high school for the Orange County system.

As to financial impact, it is recommended that funds to cover the costs for this work be appropriated from the School Capital Project Fund Balance. Potential project savings should offset the cost of this appropriation.

The Manager recommends that the Board authorize County staff to complete negotiations on an agreement with Pacific Environmental Services to conduct constructibility reviews for two (2) schools, whose total costs shall not exceed \$78,590.00; authorize the Manager to sign the resulting agreement; to endorse a second phase of the selection process for a value engineering firm; and to direct the Manager to communicate to the School Superintendents, the Board's intention for value engineering on future school projects.

Commissioner Halkiotis said that he believes that the County is very late in the process for both systems. The Smith facility will be going out for bids in September or October 1999, and the elementary school in Orange County is a prototype building, which has been previously built three (3) times. Commissioner Halkiotis also expressed his disappointment with the cost of hiring PES as consultants on these projects, particularly since the consultants had indicated that they would be able to train County staff in this process. He believes use of the consultants is too expensive and too late to be of benefit to the school projects, and he would rather support hiring a full-time County employee to serve in a value engineering overseer capacity.

Commissioner Carey stated that this type of consultant would work best if brought into any project from its inception. He questioned whether this action would delay the school projects from going out for bid. Purchasing Director Jones explained the process that the consultants followed. If July 8, 1999 is the submission date for bids, there may be some limited opportunities for savings with the Chapel Hill middle school project.

Chair Gordon questioned why the consultants fee was as large as quoted. Purchasing Director Jones referred the Board to the cost breakdown sheet included in the agenda abstract. Commissioner Brown stated that she was very surprised at the proposed cost of the consultants' services on these two (2) projects. Purchasing Director Jones explained that the team of consultants would meet for one (1) entire week to complete their evaluation. During this time, they would meet with the relevant school

system to determine what does and does not functionally work on that project. Commissioner Brown stated that this was not exactly how she believed the consultants would function; rather, she believed there would be someone assigned to work full-time to work with the two (2) school systems. Commissioner Brown further stated that she believes the County needs to pursue more information with regard to this issue.

Commissioner Jacobs stated that if the Orange County schools are going to bid within the following week, then it is already too late to pursue this course of action. However, he does not agree that it is too late to utilize this process with the Smith Middle School project and he would be comfortable attempting this process on that project. He agrees that any value engineering consultant should be involved in the process from its inception. Commissioner Jacobs believes the County needs to send a letter to the two (2) school boards involved stating that our decision was based on time constraints.

Commissioner Carey stated that the County needs to proceed with establishing a value engineering process, even if it is only for one (1) project.

Chair Gordon stated that the County should follow through with obtaining a value engineering firm, but that she is not comfortable singling out one (1) school system at this time. She believes that the optimal usage of the County's funds would be to hire a firm that would be capable of performing all necessary functions to ensure value engineering goals are met.

Commissioner Halkiotis said that he believes that the County needs to better define and justify the costs for these schools and that this initiative is long overdue, with the need having existed for several years.

Commissioner Carey made reference to the policy whereby the Board of County Commissioners will be making decisions at each step in the process, and these decisions will be made based on the County Commissioners' judgment only. Commissioner Carey stated that he would be uncomfortable following this policy unless a value engineering process exists so the Board can learn whatever information it needs to make an informed decision.

A motion was made by Commissioner Carey, seconded by Commissioner Jacobs to approve a maximum expenditure of \$39,000.00 for the Smith Middle School project.

VOTE: AFFIRMED: Commissioners Carey and Jacobs

OPPOSED: Commissioners Gordon, Brown, and Halkiotis

Commissioner Brown stated that one well-experienced person could work very effectively with the schools and she is still interested in pursuing value engineering. She believes the committee that has been formed could address this issue.

A motion was made by Commission Brown, seconded by Commissioner Halkiotis to approve the second phase of the value engineering process.

VOTE: UNANIMOUS

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**ORANGE COUNTY  
BOARD OF COMMISSIONERS**

**ACTION AGENDA ITEM ABSTRACT**

**Meeting Date:** December 7, 1999

**Action Agenda  
Item No.** \_\_\_\_\_

**SUBJECT:** Cost Efficient Facilities Initiatives (CEFI) for Buildings Constructed with County funds

**DEPARTMENT:** Purchasing & Central Services

**PUBLIC HEARING:** (Y/N)

No

**ATTACHMENT(S):**

Report

**INFORMATION CONTACT:**

Pam Jones extension 2652

**TELEPHONE NUMBERS:**

Hillsborough 732-8181

Chapel Hill 968-4501

Durham 688-7331

Mebane 336-227-2031

**PURPOSE:** To consider a concept for maximizing the cost effectiveness of facilities constructed using County funds.

**BACKGROUND:** The attached report outlines a process for pursuing cost efficient facilities for buildings built using County funds. Essentially, the program would create a performance standard overlay to the existing school construction standards. These performance standards would be used as a benchmark in the design of any county or school facility.

**FINANCIAL IMPACT:** None defined.

**RECOMMENDATION(S):** The Manager recommends that the Board endorse the Cost Efficient Facilities Initiatives (CEFI); and request that the Manager include the Item for discussion at the School/Commissioner work session on December 13, 1999.

**Proposed Cost Efficient Facilities Initiatives (CEFI)  
for County  
and  
School Capital Projects**

**December 7, 1999**

A work group involving two County Commissioners, the County Manager and several County staff members met several times over the past month in an effort to identify cost efficiency initiatives in the development of County and School facilities. The ensuing report is meant to reflect the essence of these discussions as well as to provide a point of departure for dialogue among the Board of Commissioners and School Board members.

**Why Initiate Cost Efficient Facilities Initiatives (CEFI) Now?**

According to the Orange County Planning Director, projections of school construction needs indicate that approximately 19 schools will be required to meet the student population needs over the next 30 years. Based on construction estimates from the school construction standards, the present value dollars needed to support construction for these educational facilities is estimated to be \$339,463,685.

The following table reflecting the projection of school needs is based on the assumption that growth will continue at a constant enrollment increase each year (i.e. Orange County School District at 150 new students per year and Chapel Hill/Carrboro at 300 new students per year. As further development of the School Adequate Public Facilities Ordinance (SAPFO) continues, a further analysis of existing capacity as well as proposed capacity will be conducted.)

Orange County System	Chapel/Hill Carrboro System
<ul style="list-style-type: none"> <li>• <b>Elementary:</b> 4 x \$12,785,485=\$51,141,940</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Elementary :</b> 7 x \$12,785,485=\$89,498,395</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Middle:</b> 2 x 18,504,670=\$37,009,340</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Middle:</b> 3 x 18,504,670= \$55,514,010</li> </ul>
<ul style="list-style-type: none"> <li>• <b>High School:</b> <ul style="list-style-type: none"> <li>• 1500 student capacity: 1 x \$40,800,000= \$40,800,000</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>High School:</b> <ul style="list-style-type: none"> <li>• 1000 student capacity: 1 x \$24,700,000 = \$24,700,000</li> <li>• 1500 student capacity: 1 x \$40,800,000= \$40,800,000</li> </ul> </li> </ul>

- Total estimated construction costs over 30 years for Orange County School District is therefore \$128,951,280.
- Total estimated construction costs over 30 years for Chapel Hill/Carrboro School District is therefore \$210,512,405.
- Total estimated construction costs over 30 years to meet educational facility needs is therefore \$339,463,685.

Further, the County is facing significant construction needs of its own through its statutorily required support of court system facilities. Preliminary estimates equate the cost of the judicial facilities (without jail construction) with those of a new elementary school.

This brings the total potential 30-year construction outlay for education and judicial facilities to approximately \$352,249,170.

Projected costs of this magnitude create a considerable challenge to ensure that construction and major renovation projects funded by the County are properly designed to meet both County and School needs within available resources.

In addition, with the advent of the School Adequate Public Facilities Ordinance (SAPFO), now in development, the fiscal issues will demand greater attention. As you may know, the SAPFO will, among other things:

- Define a level of service capacity, which each new school will be expected to meet. For example, if "X" number of units are approved for development within the County, then "Y" type of school (elementary, middle, high school) with "Z" capacity must be built within the next "N" number of years; and
- The SAPFO will allow schools to operate marginally over-capacity for only a limited period of time, thereby creating the necessity for school construction to be considered in a timely manner.

***A potential solution:***

This look to the horizon tells us that the limited package of funding resources available to support construction initiatives will not be sufficient to meet demand without very careful planning. Rather than to immediately raise the funding bar, and potentially the tax rate, it is prudent to consider cost efficiency measures that will provide functionally excellent facilities at a manageable cost.

In the Spring/Summer 1999 the Board considered a value engineering option for County and school projects, in which each facility would be subject to a value engineering process in tandem with its design. This approach proved to be unsuitable, particularly for upcoming school construction projects, from a cost and timing point of view.

Further discussion has prompted us to suggest an alternative approach that functions as a stand-alone process for County projects but creates a design standard overlay to the existing school construction standards. The process is outlined as follows:

- A group similar to the school construction standards committee would be convened to review infrastructure items common to all buildings (HVAC, plumbing, finishes, window glass, etc.). This group would also include a third party consultant to add a value-engineering component to the development of the standards (accurate cost projections, life cycle cost analysis, etc.)
- Functional standards would be developed for each of these components. Examples of the functional standards might be:

- The roofing standard for buildings will be metal (unless prohibited as may be the case in historic districts); or
- A specific energy efficiency level (Btu consumption per square foot) must be achieved by the HVAC system proposed; or
- To avoid future maintenance complications, systems, such as water/gas service or wiring raceways, shall not be embedded in the concrete floor slab unless code restrictions prohibit overhead installations.
- Upon completion, the resulting standards would be taken by the committee members to their respective governing boards for comment.
- Ultimately, the Board of Commissioners would adopt the standard by which they would fund capital projects.
- Standards would be provided to any firm retained by the County or the Schools to design a facility. The firm would be expected to design in compliance with the design guidelines.
- Upon completion of a facility design, the designer would provide certification to the School and the County that the design guidelines had been met or cite areas where deviations were mandated by a regulatory body. The County Engineering staff would review the bid/construction documents and the certifications and render an opinion on the sufficiency of compliance documentation.
- In regard to school projects, if a School Board determines that exceeding a standard is critical to the viability of a given program, then the School Board may submit a proposal to pay for additional costs from other pay-as-you-go funds available to the School, e.g. recurring capital.

#### Funding:

Recommendations for funding of capital projects remain as endorsed by the Board in June 1999. The concept is as follows:

- While the Board will continue to approve the projects in the County's ten-year CIP, approval of specific project components will occur after costs have been firmly established by bid, a contract, or other highly reliable cost determining means for each component of project development. Essentially, the appropriation would be equivalent to the amount of money ready to be spent for a particular project component function (planning, site development, construction, etc.)
- Capital Policy revisions to reflect this are imminent.

As noted in the June action, this process will involve additional steps as the Board is called upon to take action at various milestones in the project, rather than allocating a lump sum for each project when the CIP is approved. However, this means of appropriating for capital projects appears to provide the County considerably more flexibility in resource management. Since appropriations would be made by project component and would be based on more accurate cost data, any surplus from the total project would remain available for appropriation to future CIP projects.

#### Benefits:

- We believe this approach promotes greater consistency in systems and does a better job of analyzing systems before they are specified for use in a building.
- Major time and cost commitments occur one time. As future refinements of the standards become necessary, they should be manageable and could possibly be accomplished through collaboration of School and County staff.

- This approach provides consistent guidelines for designers retained by the County and Schools for facility design. Clearly articulated expectations on the front end of a project are likely to yield a more acceptable result.
- Possibly the greatest benefit to implementing cost efficient facilities initiatives is our enhanced ability to project accurate construction costs. As previously indicated, our accurate projection of costs for the CIP will become essential with the adoption of SAPFO. This becomes apparent when one understands that SAPFO is driven by a complex inter-relationship involving growth-generated demand for school capacity, capacity of existing school facilities, projected school construction/capacity, construction costs for school facilities and CIP funded budgets for school construction. Under this scenario, any deviation from original data regarding capacity and subsequent construction costs could cause significant negative impact on CIP appropriations.

**Minutes for December 7, 1999**

**e. Cost-efficient Facilities Initiatives (CEFI) for Buildings Constructed Using County Funds**

The Board approved a concept for maximizing the cost effectiveness of County building projects.

A motion was made by Commissioner Brown, seconded by Commissioner Jacobs to endorse the Cost Efficient Facilities Initiatives and request that the Manager include the item for discussion at the School/Commissioner work session on December 13, 1999.

VOTE: UNANIMOUS

10

**Proposed Cost Efficient Facilities Initiatives (CEFI)  
for County and  
School Capital Projects**

**December 7, 1999**

A work group involving two County Commissioners, the County Manager and several County staff members met several times over the past month in an effort to identify cost efficiency initiatives in the development of County and School facilities. The ensuing report is meant to reflect the essence of these discussions as well as to provide a point of departure for dialogue among the Board of Commissioners and School Board members.

***Why Initiate Cost Efficient Facilities Initiatives (CEFI) Now?***

According to the Orange County Planning Director, projections of school construction needs indicate that approximately 19 schools will be required to meet the student population needs over the next 30 years. Based on construction estimates from the school construction standards, the present value dollars needed to support construction for these educational facilities is estimated to be \$339,463,685.

The following table reflecting the projection of school needs is based on the assumption that growth will continue at a constant enrollment increase each year (i.e. Orange County School District at 150 new students per year and Chapel Hill/Carrboro at 300 new students per year. As further development of the School Adequate Public Facilities Ordinance (SAPFO) continues, a further analysis of existing capacity as well as proposed capacity will be conducted.)

<b>Orange County System</b>	<b>Chapel/Hill Carrboro System</b>
<ul style="list-style-type: none"> <li>▪ <b>Elementary:</b> 4 x \$12,785,485=<b>\$51,141,940</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Elementary :</b> 7 x \$12,785,485=<b>\$89,498,395</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>Middle:</b> 2 x 18,504,670=<b>\$37,009,340</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Middle:</b> 3 x 18,504,670= <b>\$55,514,010</b></li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>High School:</b> <ul style="list-style-type: none"> <li>• 1500 student capacity: 1 x \$40,800,000= <b>\$40,800,000</b></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>High School:</b> <ul style="list-style-type: none"> <li>• 1000 student capacity: 1 x \$24,700,000 = <b>\$24,700,000</b></li> <li>• 1500 student capacity: 1 x \$40,800,000= <b>\$40,800,000</b></li> </ul> </li> </ul>

- Total estimated construction costs over 30 years for Orange County School District is therefore \$128,951,280.
- Total estimated construction costs over 30 years for Chapel Hill/Carrboro School District is therefore \$ \$210,512,405.
- Total estimated construction costs over 30 years to meet educational facility needs is therefore \$339,463,685.

Further, the County is facing significant construction needs of its own through its statutorily required support of court system facilities. Preliminary estimates equate the cost of the judicial facilities (without jail construction) with those of a new elementary school.

This brings the total potential 30-year construction outlay for education and judicial facilities to approximately \$ 352,249,170.

Projected costs of this magnitude create a considerable challenge to ensure that construction and major renovation projects funded by the County are properly designed to meet both County and School needs within available resources.

In addition, with the advent of the School Adequate Public Facilities Ordinance (SAPFO), now in development, the fiscal issues will demand greater attention. As you may know, the SAPFO will, among other things:

- Define a level of service capacity, which each new school will be expected to meet. For example, if "X" number of units are approved for development within the County, then "Y" type of school (elementary, middle, high school) with "Z" capacity must be built within the next "N" number of years; and
- The SAPFO will allow schools to operate marginally over-capacity for only a limited period of time, thereby creating the necessity for school construction to be considered in a timely manner.

***A potential solution:***

This look to the horizon tells us that the limited package of funding resources available to support construction initiatives will not be sufficient to meet demand without very careful planning. Rather than to immediately raise the funding bar, and potentially the tax rate, it is prudent to consider cost efficiency measures that will provide functionally excellent facilities at a manageable cost.

In the Spring/Summer 1999 the Board considered a value engineering option for County and school projects, in which each facility would be subject to a value engineering process in tandem with its design. This approach proved to be unsuitable, particularly for upcoming school construction projects, from a cost and timing point of view.

Further discussion has prompted us to suggest an alternative approach that functions as a stand-alone process for County projects but creates a design standard overlay to the existing school construction standards. The process is outlined as follows:

- A group similar to the school construction standards committee would be convened to review infrastructure items common to all buildings (HVAC, plumbing, finishes, window glass, etc.). This group would also include a third party consultant to add a value-engineering component to the development of the standards (accurate cost projections, life cycle cost analysis, etc.)
- Functional standards would be developed for each of these components. Examples of the functional standards might be:
  - The roofing standard for buildings will be metal (unless prohibited as may be the case in historic districts); or
  - A specific energy efficiency level (Btu consumption per square foot) must be achieved by the HVAC system proposed; or
  - To avoid future maintenance complications, systems, such as water/gas service or wiring raceways, shall not be embedded in the concrete floor slab unless code restrictions prohibit overhead installations.
- Upon completion, the resulting standards would be taken by the committee members to their respective governing boards for comment.
- Ultimately, the Board of Commissioners would adopt the standard by which they would fund capital projects.
- Standards would be provided to any firm retained by the County or the Schools to design a facility. The firm would be expected to design in compliance with the design guidelines.
- Upon completion of a facility design, the designer would provide certification to the School and the County that the design guidelines had been met or cite areas where deviations were mandated by a regulatory body. The County Engineering staff would review the bid/construction documents and the certifications and render an opinion on the sufficiency of compliance documentation.
- In regard to school projects, if a School Board determines that exceeding a standard is critical to the viability of a given program, then the School Board may submit a proposal to pay for additional costs from other pay-as-you-go funds available to the School, e.g. recurring capital.

Funding:

Recommendations for funding of capital projects remain as endorsed by the Board in June 1999. The concept is as follows:

- While the Board will continue to approve the projects in the County's ten-year CIP, approval of specific project components will occur after costs have been firmly established by bid, a contract, or other highly reliable cost determining means for each component of project development. Essentially, the appropriation would be equivalent to the amount of money ready to be spent for a particular project component function (planning, site development, construction, etc.)
- Capital Policy revisions to reflect this are imminent.

As noted in the June action, this process will involve additional steps as the Board is called upon to take action at various milestones in the project, rather than allocating a lump sum for each project when the CIP is approved. However, this means of appropriating for capital projects appears to provide the County considerably more flexibility in resource management. Since appropriations would be made by project component and would be based on more accurate cost data, any surplus from the total project would remain available for appropriation to future CIP projects.

Benefits:

- We believe this approach promotes greater consistency in systems and does a better job of analyzing systems before they are specified for use in a building.
- Major time and cost commitments occur one time. As future refinements of the standards become necessary, they should be manageable and could possibly be accomplished through collaboration of School and County staff.
- This approach provides consistent guidelines for designers retained by the County and Schools for facility design. Clearly articulated expectations on the front end of a project are likely to yield a more acceptable result.
- Possibly the greatest benefit to implementing cost efficient facilities initiatives is our enhanced ability to project accurate construction costs. As previously indicated, our accurate projection of costs for the CIP will become essential with the adoption of SAPFO. This becomes apparent when one understands that SAPFO is driven by a complex inter-relationship involving growth-generated demand for school capacity, capacity of existing school facilities, projected school construction/capacity, construction costs for school facilities and CIP funded budgets for school construction. Under this scenario, any deviation from original data regarding capacity and subsequent construction costs could cause significant negative impact on CIP appropriations.

**Minutes: December 13, 1999 Joint BOCC/School Board Worksession**

**a. Cost Efficient Facilities Initiative**

John Link said that he participated on a task force that included Director of Central Stores and Purchasing Pam Jones, and Commissioners Jacobs and Halkiotis in which they discussed the concepts of value engineering. He said that according to growth projections, there would be a need for 19 new schools over the next 30 years at an estimated cost of \$340,000,000. The County is also talking about an adequate public facilities ordinance which directly affects how growth is addressed. The focus on the capital improvement budget will be more accentuated.

Pam Jones said that by looking at the projections, the construction costs over the next three decades is going to be significant. She said that what is being proposed tonight is a process that will be collaborative among the schools and the County. Page two of attachment 1b outlines the process. She said that performance standards would be developed for new construction. The emphasis is on using the available resources that will last the longest amount of time. She explained the procedure that would be followed. She said that the funding of the new construction would follow along similarly with the concepts of value engineering. The Commissioners would approve the project up front, but it would be funded in accordance with the various components. The major amount of time would be spent up front. This process also provides some consistent guidelines for the architect. She said that this process is a good start with getting together and collaborating on what the acceptable standards are for buildings that the County might build.

Commissioner Halkiotis said that the driving force behind this is the fact that the Shaping Orange County's Future Task Force presented some frightening figures with respect to how many schools would be needed by the year 2030. He said that when Planning Director Craig Benedict first came to Orange County, he started doing some studies and conservatively predicted that 19 schools would be needed by the year 2030. Commissioner Halkiotis said that the amount of money that would be needed to fund these schools is really scary. He feels that the County has been very frugal in building necessary structures that it needs for its own programs and that if all of the expenditures for buildings that have been built for County functions over the last ten years were added together, the total would not add up to the cost of one elementary school. He mentioned that it is projected that the County will need a new, very large jail soon. He feels that it is foolish for the County not to plan for the \$340,000,000 that it is going to cost to build 19 new schools.

Chair Carey clarified that the projected 19 schools does not include replacements.

Nick Didow shared some thoughts. He invited the County Commissioners to include participation by the school board members in initiatives like this. He said that the standards that Pam Jones mentioned were not something new in terms of construction. If these standards are a way to gain some additional efficiencies and to do an even better job of the stewardship of the funds then he feels it is a good idea. He thinks that the school boards have considerable experience in this type of analysis and would be happy to share it.

Susan Halkiotis made reference to the statement that the standards would be reviewed periodically. She feels that with the changes in technology and innovations a review is necessary. She feels it is something that is already being done and that sharing information would be useful.

Chair Carey said that he feels it would be beneficial for all parties to sit down to discuss the standards and look at them periodically to see if they need to be revised.

Gloria Faley made reference to the next item, Parks Task Force Resolution on Joint Access to Recreation Facilities, and said that when considering these facilities the effect of open facilities on the teaching atmosphere needs to be studied.

Chair Carey said that this recommendation includes a group from the school boards and the County getting together over the next few months to arrive at a plan.

Pam Jones said that the standards she spoke of create an overlay to the existing standards.

John Link said that the present standards are quantitative in terms of the amount of square footage per function in the schools.

Keith Cook said that the schools already have guidelines that have been incorporated over the years and it seems that the two school boards are not given the credit they are due for already

doing a good job. He said that the guidelines should be flexible as things change over the years. He requested that the County invite the school boards to discuss these things early in the process.

Chair Carey said that he wished this meeting could have been earlier. He said that the County Commissioners have to initiate things that are in the best interest of the public in Orange County and sometimes the school boards cannot be included in the process early on. He said that it was unreasonable to think that the school boards would be brought in to discuss matters before the County Commissioners discuss them among themselves.