

“East Central College
will provide an
environment for lifelong
learning”



Project Team	Page 2
Introduction - Campus Development Plan	Page 3
Summary - Campus Development Plan	Page 4
Principles - Strategic Transformation	Page 6
Executive Summary - Project History	Page 8
Campus Character	Page 9
Campus Signage	Page 10
Ideation Workshops	Page 11
Campus Vehicular Accessibility & Egress	Page 15
On Campus Vehicular Circulation	Page 21
On Campus Pedestrian Circulation	Page 22
Campus Space Needs	Page 24
Facility Analysis - Building	Page 26
Facility Analysis - Site Utilities	Page 31
Facility Analysis LEED Certification	Page 36
Facility Analysis Building - Life Cycle	Page 37
Maintenance Needs & Requirements	Page 39
Life Safety Systems	Page 41
Infrastructure	Page 47
Illustrations: Campus Master Plan	Page 49
Phase One Program Migration	Page 50
Phase Two Program Migration	Page 51
Color Renderings	Page 52
Master Plan - Cost Summaries	Page 55

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ECC Students and Faculty that assisted the project team in the Master Plan Program Development!

CHIODINI ASSOCIATES:

Lou & Bill coordinated the efforts of the design team and provided Land Planning, Architectural Design and Architectural Landscape recommendations for the ECC Master Plan.

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Todd reviewed the Master Plan Concepts and provided input on constructability and probable costs for the work being proposed.

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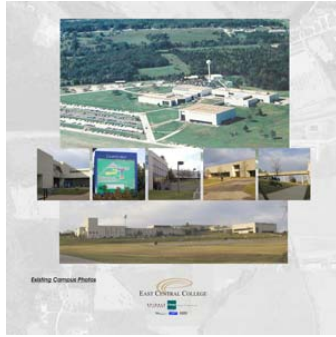
Mark evaluated the ECC Campus facilities and site infrastructure, made recommendations for up-grades in support of the Master Plan.

CRAWFORD, BUNTE, BRAMMEIER:

Dave evaluated the vehicular traffic, to, from and through the campus.

PAULIEN & ASSOCIATES:

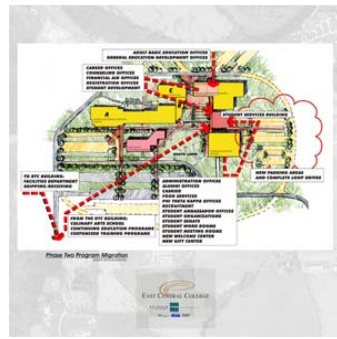
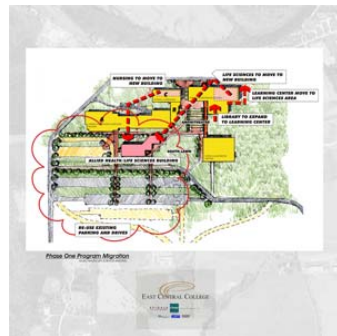
John documented existing ECC building spaces, comparing them to recognized nation-wide community college standards, and developed a space utilization and space needs planning study in support of the campus-wide Master Plan.



Introduction

East Central College has embarked upon this current planning initiative at an exciting moment in its history. Significant growth has taken place over the last thirty-seven years, culminating with the construction of the New Fine Arts Building in FY 1998. At the same time, new programs are being offered and core strengths are evolving to meet the educational needs of the community. This is indicative of a vital institution responding to the call to fulfill its role as a valuable community resource.

These growing academic needs in turn demand facilities that will adequately support their programs. Current facilities need to be reassessed to examine their utility in the face of change. The college is therefore faced with an extraordinary opportunity to renew its mission, re-focus its goals and revitalize its campus. This study aims to provide a way to embrace this challenge and create a campus environment that truly supports a community of active learning.



CAMPUS DEVELOPMENT PLAN SUMMARY

Every campus begins with individual buildings and grows by either adding buildings to them or linking them with circulation paths. A sign of a mature institution is when together they begin to create an image and most importantly, define open spaces which contribute to that image. As development continues, these spaces become as important as the buildings. East Central College is at that turning point.

NEW ALLIED HEALTH/LIFE SCIENCES BUILDING

Our effort aims to build upon the development of your campus thus far. Needless to say, it is a great opportunity to build a new building which can take advantage of this emerging image of campus. Consequently, the **New Allied Health/Life Sciences Building** is strategically sited to accomplish multiple objectives simultaneously:

- **Expresses the new image of the campus most prominently** while covering the less important façade of the AC Building. The building will be visible to all who enter the campus clearly establishing a new architecture of ECC.
- **Reinforces two existing campus pedestrian pathways.** This gathering of the flow of academic life reinforces a sense of community as more people share a common path in their educational purpose.
- **Defines existing open areas to create significant “campus” space.** The new “South Lawn” becomes a memorable part of the overall campus design while the smaller “courtyard” to the north creates a gateway to the campus from the parking lots.
- **Creates a forecourt to the theatre.** The path to the auditorium is reinforced, enhancing the importance of this theatre facility to the community.

ACADEMIC SUPPORT EXTENSION

Similarly, the proposed **Academic Support Building** is aimed at maximizing the location and qualities of the existing buildings to either side:

- **Creates a new image to the Highway 50** by joining the Administration Building with the Multi Purpose Building. The largely windowless buildings act as “bookends” while the new architecture could be open and transparent, uniting the facilities with a glowing beacon signifying a new spirit of growth and innovation at the college.



- [Provides important program space.](#) The Space Needs Analysis and Space Allocation Planning provides an initial road map for ECC to begin implementation of the long-range campus master planning process; to be reviewed and re-evaluated on a minimum 5 year cycle.
- [Defines the heart of the campus.](#) This area becomes a new outdoor “room” for the college and, as shown, could be developed into an amphitheater for ceremonial occasions and performances.

TRAFFIC, CIRCULATION & PARKING: OVERALL CAMPUS IMAGE

- [Traffic, Circulation and Parking](#) The initial impression of the campus is most strongly conveyed at the main entry. The proposed future development establishes sight lines to the new development on campus. Primary movement through the campus is on a new loop road that eliminates dangerous and inefficient vehicular movement through the existing parking lots. It takes traffic to the periphery of the campus and develops discreet parking areas proximate to the buildings.

The new parking area to the North Side of the Theatre will provide elderly and handicapped with close parking proximity to the second floor Theatre lobby entry. The South side parking will provide drop-off access to the lower level Theatre entrance and West “gateway” to the ECC Pedestrian Way.



Principles for Strategic Transformation

Campus development is not a cost; *it is an investment*. Every decision needs to maximize that investment through *the strategic alignment of mission, goals and development*. In this way, every dollar spent advances the mission and achieves the goals of the college most effectively. Three principles guide this effort:

1. Respect what is.

Your existing campus is the most valuable asset you have, regardless of its condition. A careful, objective assessment of the facilities, the infrastructure and, most importantly, the campus itself will provide the most powerful platform for future development.

2. Understand your campus “Ecology.”

A campus is made up of a complex interrelationship of many dynamic influences.

Only a comprehensive analysis of your institution will reveal how the pieces are connected and, most significantly, their relative importance. Understanding that *every aspect* is connected in a specific hierarchy leads to *decisions that are powerfully strategic*, addressing multiple issues with a single investment.

3. Design the Process.

A Master Plan is less a “plan” than a “process.” Although one product of a traditional master planning effort is indeed a plan, the dynamic needs of your institution inevitably evolve over time. Specifics of a plan need to evolve as well. The collaborative effort which draws upon diverse constituencies yields an educated decision-making entity, built upon a shared understanding of goals and objectives and capable of addressing future needs. The Campus Master Plan then provides the context for this informed decision-making and creates a framework for development that can evolve congruently with long-term goals.



Building Upon the Past, Providing for the Future

Following these “principles,” the process for creating the ECC Campus Master Plan began with two requirements: One, to clearly understand the future needs of the college, and two, to fully appreciate the current strengths and campus assets. These requirements have been met through a highly collaborative endeavor, which is the core value of the campus Master Plan. This planning effort has included primary constituencies from trustees, to faculty and administration and students and the local community . It has assessed current classroom environments and projected future needs compared with national benchmarking - (Refer to the Paulien & Associates Study – “*East Central College Utilization and Space Needs Analysis*” dated June , 2005). Most importantly, it has taken a comprehensive approach to evaluating all aspects of the campus facilities from maintenance, operations and infrastructure to existing building equipment and capacities. This collaborative effort provided the groundwork for the Campus Master Plan. Based upon a collective understanding of future needs and the deep appreciation of existing strengths, the Master Plan creates the context for informed, intelligent decision-making and is set upon the solid foundation you have already created. It is a framework for growth that can respond to the evolving needs of the college.

Realizing Your Vision

This document and the enclosed drawings are intended to be an active part of the effort to realize your vision for East Central College. It is meant to be a “tool,” which if used effectively, will assure the strategic transformation described within: to create a campus that nourishes the life of your academic family and truly serves the needs of your community.



First enrollment - December 8, 1968



Ground Breaking - September 3, 1969

Project History

A drive for the approval of a Junior College District in Franklin County to serve 13 local school districts was initiated in 1967 and approved by a majority vote on April 2, 1968 (5,565 votes “yes” and 2,025 votes “no”). The first six members of the Board of Trustees took the oath of office on June 6, 1968. That December, Barbara Mauntel, a high school senior, was the first student to apply for admission to the college. The cost to attend the new college was estimated at \$250 per year for in-district students which included maintenance fees and textbooks.

The first classes began September 15 1969, and were held in temporary facilities at the Memorial Auditorium in Union. There were 470 students enrolled the first semester.

A permanent campus site was selected just east of Union; a 114-acre tract of land bordered on the north by Highway 50.

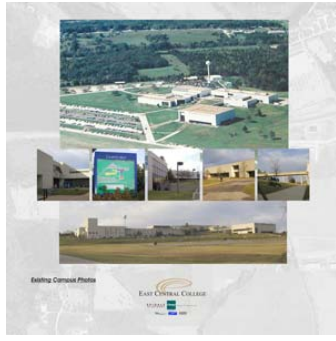
Groundbreaking ceremonies for the first phase of campus construction (the Administration Building) were held Friday, August 28, 1970. The first classes at the permanent campus were held January 24, 1972. The second phase of campus construction (the Multipurpose Building) was completed in 1973.

The third phase of construction (Classroom Building “A” – formerly the Vo-Tech Building) was completed in 1978. That was followed by construction of Classroom Building “B/C” (formerly called the Classroom/Laboratory Building) which was completed in time for the start of the 1985 fall semester.

An additional 92 acres of land were purchased in 1994 to accommodate expansion and growth. Phase five was completed in 1998 and included the expansion of Classroom Building “A” and construction of new facilities for the theater and music departments. The Regional Training Center was completed in December of 2000.

In addition to the more than 200 acre central campus with its 253,000 square feet of buildings located in Union, Missouri, East Central College offers courses and programs at several off-campus locations in Rolla, Sullivan, and Washington, Missouri.

Since its inception in 1968, East Central College has become a dynamic entity within the local communities and region by offering excellent educational opportunities and program partnerships between the college, local business and industry. The goal of the Master Plan effort is to continue this excellence, building upon the strengths of the college, and make East Central the best community college in the State of Missouri.



Campus Character

East Central College presently has a coherent style of architecture on a campus surrounded by a wonderfully dynamic 200 acres of rolling landscaped hills and valleys, dominated from the central campus area and buildings with spectacular vistas (in all directions) to the surrounding countryside. A strong system of “cross-axial” pedestrian pathways presently exist, but lack definition. The existing campus forms need to be positively reinforced and new building and landscape forms introduced, which will build upon the positive strengths of the existing campus. The new campus plan also needs to create new areas for the campus community to gather (both exterior and interior areas), which will engage and create positive “memories” for the students and alumni. The naming of various areas on campus will reinforce this goal. These positive memories will be retained for a lifetime and passed on to the students children, grandchildren and great-grandchildren. This is a part of the college experience that many ECC students are presently seeking on campus.



Campus Signage

During the Workshops, a number of comments were received from both the campus community and visitors to the campus regarding the fact that the identification of on-site directional information and campus building identification were for the most part, undefined. Parking lot areas were not related to building destinations, and the monolithic college buildings were NOT clearly identified. The Union Fire Department has repeatedly ask the College to better define the buildings on campus for clearer emergency access for both the local Fire Department and EMT services.

The MP Building has a large ECC sign on its Northeast façade which adequately identifies the campus from Route 50 - only traveling westward from Route 44. The main entry/exit road off Prairie Dell Road, is not well identified at this entry/exit point; and the internal campus roadway system has very few signs relating to the parking lots or their relationship to the campus buildings. Similarly, once you exit your car, the pedestrian walkway system provides no references to building locations, or other site/parking locations.

The master plan suggests that these campus graphic communication “voids” be studied in greater detail, realizing that the need for “signage” is a manifestation that other design elements on campus were not clearly defined in the context of their surroundings. In the design and location of any new signage on campus, the intent is to minimize its aesthetic impact while effectively serving the purpose of conveying information. The natural environment, views, planting and significant buildings should dominate the ECC Campus experience. The new signs should not compete for attention.

In conjunction with the new vehicular signage, pedestrian ways should be better defined by the development of various exterior spaces between building - all leading to the main vista at the central South Lawn/Amphitheater area. Each pedestrian way needs to be defined at their main entry/exit point with architectural and/or landscape elements defining the “gateway” to campus. In addition, the project team has recommended that each existing and new building receive a new entry identification canopy. All these items will assist in developing a “synergy” on campus, so that the *total effects of the campus ecology is greater than the some of the individual effects;* and will provide that all future additions will add to the campus synergy, and provide the sense of “place” at ECC that the students have requested in the Workshops - a sequence of “Memory Spaces” on campus and a different atmosphere than they experienced during their High School years.



“Ideation” Workshops Conducted with the Campus Community

The purpose of the “*Ideation*” Workshops was to meet with a wide variety of East Central College students, faculty and staff as well as members of the surrounding communities to identify key objectives and critical needs related to the future infrastructure, facilities and technology improvements in support of the development of an updated Master Plan for the College.

WORKSHOP #1:

Held on November 30, 2004 with the attendees invited from a limited list of participants from East Central College and the City of Union, MO. A total of sixteen (16) people attended the workshop. The “objectives” of the workshop were as follows:

- ❖ Identify key objectives and critical needs related to future infrastructure, facilities and technology improvements that support the current strategic plan.
- ❖ Obtain input and buy-in from a broad range of ECC stakeholders including campus leadership, faculty, staff, and key community leaders.
- ❖ Provide input to be used in guiding the development of a strategic facilities master plan which includes facility location, functional, financial, technical and operational considerations (including initial discussions on design requirements for a new Science|Nursing Building).

The Workshop Agenda was as follows:

- Introduction
- Define the unique elements at East Central College.
- Define the changes in education over the next 10 years.
- Define the changes in the community over the next 10 years.
- Who are the College’s key stakeholders, and how will they measure success over the years?
- What are the current challenges & barriers facing the College related to facilities and infrastructure?
- Prioritize the needs of the College for improvement.
- What requirements do we want to set for the development of the new Allied Health/Life Science Building?
- How do we proceed from this point-in-time to make the new master plan successful - give advice to the Project Team?



A summary of the College needs assessment was first drafted for further review and comment, and in preparation for the next workshop - (refer to the Appendix of this report for a copy of the entire Workshop #1 report.)

WORKSHOP #2:

Held on January 18, 2005 and was opened to a greater number of participants than the first workshop. The workshop was well attended with a total of eighty-three (83) people participating. The participants included five (5) ECC Administration staff, sixteen (16) ECC Faculty, twenty-four (24) ECC Support Staff and thirty-eight (38) ECC Professional Staff.

The objectives of the second workshop were as follows:

- ❖ Communicate the results of the initial workshop to the College stakeholders.
- ❖ Validate the results and priorities of the initial facility needs assessment with a broader cross-section of the College faculty and staff.
- ❖ Start to solicit input on “how” to accomplish the goals envisioned. This was accomplished by a series of “blind votes” (votes were cast in a paper bag so that no one could see how many votes were cast for each issue)
- ❖ Solicit and prioritize ideas received from the College faculty and staff to address critical needs for the existing campus and new Allied Health/Life Sciences Building. These needs were exhibited using Bubble Charts, Pareto Charts and Gap Charts, and the recommended next steps were outlined as follows:
 - Review the workshop needs assessment results with the “Core Group”.
 - Review the faculty and staff ideas for the Existing Campus.
 - Review the faculty and staff ideas for the new Allied Health/Life Sciences Building.
 - Communicate the workshop results to participants and stakeholders



WORKSHOP #3:

Held on April 6, 2005, and only students who were presently attending East Central College were invited to the Workshop. Twenty-three (23) Students attended the workshop, representing various student organizations and interest. The students expressed numerous concerns similar to those also expressed in the first two Workshops. The totality of concerns from all three Workshops were summarized as follows:

CRITICAL NEEDS

Improved Accessibility

- Improve vehicular access to , through and from campus.
- For people with disabilities on campus - (on site & within facilities).
- Improve the locations and identification of building entrances.

Improved Safety and Security

- Provide adequate student/staff notification in the event of an emergency.
- Upgrade Smoke/Fire Detection System to current life/safety codes.

Improve Occupant Satisfaction

- Attract and retain qualified faculty and staff.
- Update computer furniture and equipment - (wireless connection?).
- Improve the size and comfort in classrooms and labs - (includes adequate light levels).
- Improve building ventilation.
- Support the development of new spaces on campus.

Secure Adequate Funding

- Provide adequate funding to support capital improvements.
- Obtain high levels of community support for campus improvements and construction projects.

Improve Operations and Maintenance

- Improve electrical system.
- Improve the reliability of systems (HVAC) and technologies.
- Reduce the amount of deferred maintenance to acceptable levels.
- Reduce the amount of water leakage into ECC facilities and inadequate drainage across campus.



Make Effective Use of Technology

- Provide adequate electrical service to campus facilities.
- Make it easy to up-date facilities with new technology.
- Provide wireless networking coverage across campus.

Improve Facility Layout and Design

- Provide more space for the Library and Learning Center.
- Provide adequate classroom and lab space to support the educational programs.
- Incorporate all student enrollment functions in one, central location.
- Provide a central location for convenient access to student services.
- Provide adequate storage in all campus facilities.

Increase Community Use

- Allow for programs and activities that will increase the community use of campus facilities.
- Allow for community use of the MP Building facilities (gym, etc.).
- Use the Culinary facilities to cater community events.

New Science & Nursing Building

- Use state of the arts technology and provide for future flexibility.
- Locate the new building conveniently on campus.
- Provide an A/V Lab to support both independent and group work.
- Provide a lecture facility to accommodate a minimum of 50 students.

Architectural Concepts

- Develop a “Campus Character”.
- Develop a “Center” for the campus.
- New Buildings need to express new ideas.
- Provide a more open and comfortable atmosphere on campus.
Development new buildings and landscape plantings that will add “focus” and “human scale” to campus.



Introduction

Crawford, Bunte, Brammeier (CBB) is a St. Louis based Traffic and Transportation Engineering Firm. CBB was retained by Chiodini for the traffic and transportation elements of the Master Plan for the East Central College (ECC) Master Plan.

Existing Conditions

East Central College (ECC) is located along the south side of Missouri Route 50, west of Prairie Dell Road. Primary access to and from the campus is from Prairie Dell Road with the majority of the vehicular trips originating from the north at Route 50. The campus is also accessible thru the same entrance from Route 47 using College and Prairie Dell from the south.

Route 50 at Prairie Dell Road provides left, thru, and right-turn lanes at the signalized approach. Prairie Dell Road, the cross street to Route 50, has one northbound approach lane and an auxiliary lane striped out so that it is not used. This lane cannot be used due to the closeness of the traffic signal mast arm support structure in the southeast quadrant, that would interfere with larger truck turning movements. The southbound approach is similar except that there exists a channelized island to separate thru and left-turns from right-turns to Route 50.

There is only one point for vehicular access to ECC from Prairie Dell Road.

Background Information

Members of the consulting firm and a representative of ECC met with representatives of the City of Union and the County of Franklin to determine the status of any forthcoming highway, intersection projects, or other projects that may affect ECC and its planning for the future.

Based on our meeting with the [City of Union](#), the following information was obtained

- A new traffic signal will be added to Route 50 at Progress (east of Prairie Dell), as needed.
- A new public street is being built from Prairie Dell Road to the west at ECC’s property line and possibly could serve ECC as a secondary entrance.
- Another road is proposed to be constructed from Route 47 to the east, at or near the colleges’ west property line (at the N.W. corner of the ECC site). If this road were aligned somewhat to the south near the Parmentier property, a west side connector may be possible.
- The City has had representation at several of the ECC meetings.

- The City expressed a willingness to accept for maintenance certain sewer and water lines if they are protected with an easement. These are near the southeast quadrant of the campus.
- The City also indicated a willingness to connect the campus to the public water supply of Union thereby eliminating ECC’s private system.
- The City also recognized that traffic issues on Prairie Dell Road, south of Route 50, will continue due to the area east of Prairie Dell Road which has been zoned and utilities installed for both commercial and residential growth that is anticipated.

The meeting with the [County of Franklin](#) indicated that they do not have any pending projects in this area.

Conversations with the [Missouri Department of Transportation \(MoDOT\)](#) indicated that they had completed a “bypass study” north of Route 50 but the forecasted costs most likely would make it prohibitive.

MoDOT may be looking at a project which would widen Route 50 to multi-lanes on the existing corridor. No dates have been projected for this project.

MoDOT is also adding a southbound left turn lane on Route 47 at College.

Traffic counts were also obtained from MoDOT for Route 50 at Prairie Dell Road and a current count was also made.

Issues

After a review of existing data, field observations made during peak traffic periods, and recognizing that the areas east of Prairie Dell Road will continue to develop and add traffic to Prairie Dell Road, the consultant focused on a number of options that may improve vehicular access to and from the campus.

These options included the following:

- Additional access to and/or from ECC to Route 50, Prairie Dell Road, Route 47, and College.
- Internal circulation of the parking fields (details addressed by architect).
- Improvements to the existing transportation system that would be cost effective & implementable.



It was previously stated that Prairie Dell Road, south of Route 50, provides only one northbound lane. Another lane is striped out and currently cannot be used due to potential turning conflicts between large over the road vehicles and the existing mast arm.

The queue of northbound traffic at Route 50 is the result of the fact that approximately 65% of all northbound traffic is turning west or returning to Union or Route 47 to the north.

The 2002 MoDOT count reveals that for a 12 hour period, 7am to 7pm, there were 1636 left turns from Prairie Dell Road to the west with 491 northbound vehicles (toward Wal-mart) and 418 eastbound vehicles (toward I-44). Both counts reveal that same demand. This pattern became the basis for looking at ways to improve the traffic flow on Prairie Dell Road south of Route 50.

After analyzing these options, it is the opinion of the consultant that this campus could be satisfactorily served by the existing public streets by considering the following **short, mid-term** and **long-term** recommendations;

Short Term – (2005-2006)

1. Submit a concept plan to MoDOT and the City of Union to relocate a mast arm that is in the southeast quadrant of Route 50 and Prairie Dell Road to a new position that would allow the use of the “striped out” lane on the northbound approach to Route 50. This would immediately create two northbound lanes at the signalized intersection.

Currently, the northbound lane on Prairie Dell Road will queue past Denmark (the first public street south of Route 50) at times when student departures from ECC or commercial volumes are at their peak time.

The additional lane would shorten these queues and provide two northbound lanes rather than one lane as it exists today. The two lanes would be striped a left-turn lane only and most likely a shared lane for thru and right turning vehicles. It should be noted that during the peak hour, there are 263 left turns from Prairie Dell Road with only 52 thru and 53 right turns respectfully.



2. Pursue a secondary connection to Prairie Dell Road through the newly built and platted public street located at the S.E. corner of the ECC Campus. This secondary access could be for emergencies and may be gated should that be a security issue to ECC.

Mid Term – (2006-2008)

Submit a concept plan to MoDOT and the City of Union that would provide additional lanes on Prairie Dell Road, south of Route 50. Specifically, a separate lane for each turning movement at Route 50 would be provided. At this point, the campus’ main entrance should be reconstructed south of the existing entrance as illustrated on Chiodini’s area plan.

As with the short-term option this option provides additional lanes on Prairie Dell Road at Route 50. In fact, this option will provide a separate lane for each turning movement at Route 50 northbound.

Long Term – After Implementing the Mid Term Option

The long term plan basically provides for an additional lane in the westbound direction on Route 50 west of Prairie Dell Road. This additional lane on Route 50 would allow for a dual left turning movement from Prairie Dell Road to Route 50 westbound. If MoDOT’s future work has been completed by widening Route 50 to four and five lanes, then this option is easily implementable. If not, then the additional lane will have to taper back into Route 50 approximately 1500’ west of the traffic signal at Prairie Dell to allow for the merging of the dual lefts from Prairie Dell Road.

The feasibility of additional access to Route 47 and/or College should continually be evaluated for alternative points of access.

Implementation

As previously discussed, ECC and CBB have met with the City of Union and have had conversations with MoDOT’s Area Engineer. At this time, it is the consultants understanding that the City of Union has submitted to the East-West Gateway Coordinating Council (EWGCC) an application to request Federal Funds for a local improvement at the intersection of Route 50 and Prairie Dell Road. Should these Federal Funds be made available, there often is a requirement for a local match.

Until a concept plan is developed and approved by MoDOT, it is difficult to determine the cost or the need for additional right-of-ways or easements, utility relocations, etc. Depending on these “unknowns”, it may be feasible that ECC’s contribution be additional right-of-ways and/or easements and that the City’s share be made up of developers fees and other local matches.

In any event, ECC should be encouraged to maintain a relationship with the City and County in an effort to maximize often available funds in order to provide improvements that benefit both ECC and the traveling public within this area of the City. At this time, CBB has, at the request of ECC, submitted copies of the mid and long term plan to the cities consulting engineer for the purpose of applying for the federal funds.

Based on our initial meetings with the City and County, it is the consultant’s recommendation that ECC appoint an individual within ECC to serve as a liaison between ECC and the City and County. The liaison should also develop a contact with MoDOT’s Area Engineer.

Summary

It is the opinion of the consultant that improvements can be made to the intersection of Route 50 at Prairie Dell Road that are cost effective for both the short and mid term option periods. The need for the long term option should be restudied after implementation of the mid term option to determine if those recommendations still apply or if other options will then be more cost effective.

Short and mid term plans should be implemented whereas long term plans should be re-evaluated for their effectiveness at that time. The traffic data is attached to the appendix of this report.

At the present time, the only vehicular access to and from the 200 acre campus is off Prairie Dell Road - which runs along the East side of campus. The problems with this access point have been defined earlier in this report.

The internal vehicular circulation system consists of a perimeter roadway wrapping around the main campus buildings to the South, West and North sides. This perimeter roadway ends at a cul-du-sac at the North corner of the AD Building. A secondary roadway extends off the West side of the main perimeter road, and extends southward to the Regional Training Center Building. Parking lots are provided and designated for students, faculty/staff and visitors. Accessible spaces



are disbursed throughout these parking lots, and located as close as is possible to the various buildings. The majority of these accessible spaces are located to the South side of the Theatre and to the North side of the AD Building.

The existing parking lot access varies from one-way circulation (with angled parking spaces) in the major North and South lots, to two-way circulation (with 90 degree parking spaces) in the West side parking lots. Some parking is provided off the main circulation road (South of the MP Building), and poses a potentially serious danger when exiting these spaces to leave the campus. In addition, the main ECC Service Entrance is located adjacent and West of this hazardous parking area, and at the “Front Door” of the Campus. The Master Plan recommends that this Service Entry be re-located to the Northeast corner of the MP Building. In addition, approximately sixteen percent (16%) of the total parking spaces available on campus are graveled lots, and not accepted by the City of Union, Missouri Zoning Code as “allowable spaces” for the college.

The design team proposes to build upon the existing vehicular circulation pattern with the suggested construction of the final roadway link from the AD Building cul-du-sac, around the East side of campus, and tying back into the existing roadway system at the Southeast corner of the MP Building. This will complete the loop road around campus, set-up for the future abandonment of the existing main entry/exit road from Prairie Dell Road, and construction of a new main entry road further South off Prairie Dell Road (South of the existing baseball field parking lot.) It will also provide access to the new parking lots which will serve the future Student Services Building, as well as the relocation of the main ECC service access to the MP Building.

In addition, the Design Team has recommended that ECC continue to search for new opportunities for new secondary vehicular access to campus. A second access from the North to Route 50 has been discussed, but discussions with both the City of Union, Missouri and MODOT have discouraged this idea. A link through to Highway 47 from the West side of the campus has also been discussed; but it is thought that due to the extreme topography and rocky soils, it would be difficult to achieve any time in the near future. However, an opportunity has recently presented itself for the development of a second entry/exit from the Southeast corner of the campus and through and commercial development which is presently being constructed. The City of Union, Missouri has coordinated with the developer to provide a public street to the property limits of the ECC site, anticipating that ECC could connect to this road with a simple extension of the existing road from the RTC Building. This connection could be made immediately, and the design team recommends that this connection be made.



PARKING

On June 16, 2005 Chiodini Associates completed a visual count of all the existing parking provided on the ECC Campus, and met with officials of the City of Union, Missouri to review their current Zoning Code in regard to parking required at ECC.

The following information was tabulated:

- **ECC presently has a total of approximately 1,163 paved parking spaces.**

In addition, ECC has an additional 219 graveled parking spaces for a total parking spaces on campus of approximately 1,382 parking spaces.
- The City of Union, Missouri Zoning Code requires ECC to provide one parking space for each classroom and office at ECC **PLUS** one parking space for every 4 students attending ECC. The project team calculated that there are a total of 209 Classrooms & Offices on ECC campus **PLUS** a total of 3,000 students and 375 Faculty & Staff. Therefore, $209(+)844 (+)3,375$ divided by 4 = 844 and equals the **total parking required at ECC at 1,053 paved parking spaces.**
- The project team also counted a total of **29 “accessible”** parking spaces on campus which was as a part of the total 1,163 paved spaces counted. Title III Provisions of the Americans With Disabilities Act requires a total of **22 accessible spaces PLUS** a total of **3 Van Accessible Spaces** calculated on the total ECC paved parking count of 1,163 spaces. (ECC presently has a total of 29 accessible spaces, but no van accessible spaces were observed on campus.) This requirement for parking will increase with the addition of any new buildings on campus, and will need to be calculated when the final building program requirements are determined .

The design team recommends that the existing South side parking lots be re-configured from their present one-way circulation and angled parking layout to a two-way circulation and 90 degree parking layout. Given the existing parking lot edge to edge dimension of approximately 62 feet, we recommend that the parking space striping be re-dimensioned at a 19 feet deep parking stall with a 24 foot wide drive lane. The widths of the parking stalls could be either 9 foot or 10 foot depending upon the standard vehicle widths experienced on campus. The City of Union, Missouri parking standards for 90 degree parking are the parking spaces to be 19 feet deep, 9 feet wide with the drive lane at 22 feet wide (curb to curb dimension of 60 feet).



Pedestrian circulation between destinations on campus should be safe, convenient, direct and visually attractive. The existing major pedestrian circulation on campus is centered on two strong cross-axial pathways. The first pathway leads from the existing South parking lot to the AD Building, and the second leads from the South entrance to the Theater and Eastward to the MP Building. These pathways should be reinforced as the campus develops with new buildings introduced along these circulation paths, and with the creation of additional smaller, more pedestrian scaled spaces throughout the campus where the current spaces lack spatial definition. In addition the development of the central South Lawn and Amphitheater area will create a prime “focal point” at the intersection of these two campus pathways, and become one of the centers for student socialization on campus. These pathways also need to be visually reinforced with a variety of landscape materials and lighting to assist in the creation of campus boundaries, gateways and views.

During the Workshops, one of the concerns most repeated was the ability of students with disabilities to access the campus and campus facilities. The Americans with Disabilities Act (ADA) was approved in July, 1990 to extend civil rights protection to persons with disabilities; and provide persons with disabilities with accommodation and access equal to, or similar to, that available to the general public.

As of January 26, 1992 public accommodations are required to remove architectural barriers and communication “barriers” that are structural in nature in existing facilities, where such removal is “readily achievable”. All new facilities are required to be designed for accessibility. An architectural barrier is a physical object that impedes a disabled person’s access to, or use of a facility. The ADA defines readily achievable as “*easily accomplishable and able to be carried out without much difficulty or expense*”.

This is normally determined on a case by case basis since the Justice Department has never defined any formula or threshold to define what is “achievable.” Having said this, East Central College has done a good job of providing accommodations throughout their facilities and site, given the major topographic challenges of the campus site and phases of building construction realized between FY 1971 to FY 2000. However, some existing accommodations need to be updated due to maintenance requirements and to keep in line with changes in equipment technology. In reference to maintenance of existing accessible site areas, the path of travel needs to be maintained from the accessible parking area located at the Northeast corner of the Classroom Building “C” to the accessible entry into the AD Building. Also, in reference to equipment technology, wheelchairs



are getting larger in size and heavier due to their electric motorization and weight of electric motors and batteries. Many of the existing wheelchair lifts will not accommodate these larger and heavier wheelchairs, and will need to be up-dated. One example that the design team has recommended for the Library, is to build over one of the level changes in the reading area; and provide two new wheelchair lifts for a single level change rather than the two level changes that now exist.



A Utilization and Space Needs Analysis Report for Target Year 2009 at East Central College was completed by Paulien Associates in June, 2005 in support of the Master Plan efforts, and a summary of findings is as follows:

❖ **Classrooms:**

Numbers of existing classrooms seem to be adequate with additional capacity to add sections. However, the size, six of classrooms should be reviewed to allow for the development of smaller classrooms. (The Classrooms with 40 or more stations show poor student station occupancy percentages indicating they have more seats than are needed. Therefore, more classrooms at lower stations sizes would seem appropriate.)

❖ **Life Sciences Labs:**

The current labs are well equipped, but functionally obsolete. The current layouts are fixed – not flexible and their adjacencies to other disciplines are difficult to accomplish due to location. Remodeling can make these lab spaces usable as “general purpose” spaces in lieu of the existing program specific spaces.

❖ **Academic Support Space:**

Indicated a **deficit of 12,079 asf** (19,173 gsf) Includes the need for additional Library space.

❖ **Auxiliary Space:**

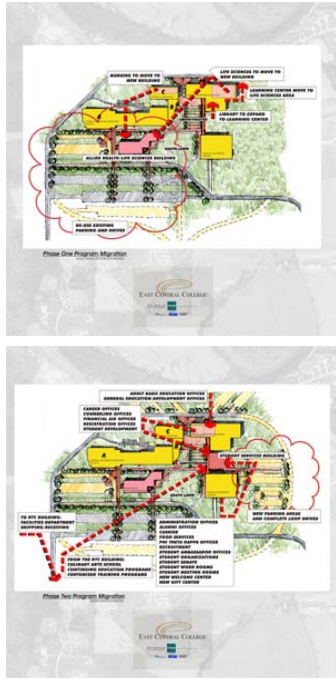
Indicates a **deficit of 3,113 asf** (4,789 gsf) - Student Union space.

❖ **Academic Office Space:**

Indicates a **deficit of 6,373 asf** (9,805 gsf).

❖ **Suggested Solution:**

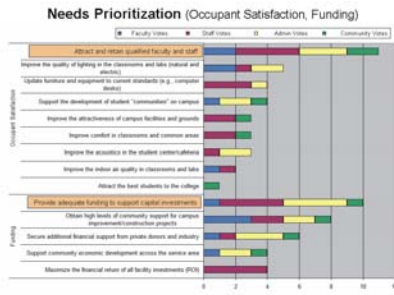
The combination of new facilities, additions to existing facilities, renovation of existing space and the development of “program migration” options on campus.



❖ **Suggested New Buildings:**

ALLIED HEALTH/ LIFE SCIENCES BUILDING - Proposed to house the growing academic programs in general science, chemistry, biology, nursing and medical laboratory/technician course work. The suggested location is south of the intersection of Classroom Building “AC” and the Link Building “BC”. This will start to establish the South Lawn of the Campus. The building is programmed to require approximately 37,926 gsf two story building.

ACADEMIC SUPPORT BUILDING - This building expansion will become the “Front Door” to the ECC Campus - a “Welcome Center” for new or potential students, a central gathering place for students and faculty to study or socialize and a link between the ECC Community and the surrounding community. The building will house student placement, career services, student government, student organizations, food service and general meeting spaces for ECC and community. The suggested location for this building is off the existing pedestrian bridge - between the AC and MP Buildings; two Story and approximately 33,900 gsf in size.



As we build consensus and alignment between constituents, we develop the blue print or catalyst for change. The Campus Master Plan develops continuity between existing facilities and new construction.

The environment that surrounds us affects us far more than we know. The affects often do not rise to the threshold of our awareness, but we are “exquisitely sensitive” to our context, whether it be social or physical. Providing environments for social interaction and foster community between students and faculty plays a critical role in recruitment and retention. On campus activities improve student academic successes.

Three Facility Strategies and Critical Needs that became apparent during the Ideation Workshops included:

1. **Improve Operations and Maintenance:**
Provide Support for Environmental Sustainability Initiatives
 - *Designs should reflect utilization of green space, natural lighting, and energy efficiency while providing required and adequate Indoor Air Quality and recycling on campus*
 - *Establish a center for a sustainable future to explore sustainable and effective environmental and social policies”*
 - *Better recycling policies (place recycling bins in high traffic areas, not just classrooms)”*
2. **Improve Occupant Satisfaction:**
Attract and Retain Qualified Faculty and Staff
 - *Improve the quality of light in the classrooms, natural lighting*
 - *Provide better faculty offices*
 - *Improve building ventilation in classrooms*
3. **Secure Adequate Funding:**
Obtain High Levels of Community Support for Campus Improvements and Construction Projects
 - *Maximize the cost / benefits of all facilities on campus*
 - *Better promotion of the strengths of the college*

Students relate emotionally, not to the facts, but to perception - emphasizing the importance of “Curb Appeal”, and the “Campus Experience”. Recent studies have shown a direct relationship between the general learning environment and student achievement and behaviors. This also includes faculty morale, feelings of effectiveness in the classroom, and sense of personal safety. This Facilities Analysis embraces environmental sustainable solutions to enhance the learning environments of the both the existing core facilities and the future campus growth:

“Restore the Core!”

If we stand still, we fall behind.”

For the past 40 years, institutions of higher education have struggled with their responsibilities for identifying their facilities needs and the responsibilities to fund the continuing renewal of systems and the correction of maintenance.

As campuses grow older, budgets are tightened, maintenance is deferred and the physical space of a college begins to slowly decline and eventually reaches a point where it affects other aspects of the institution. Campuses, however, can be effectively revitalized in a variety of ways, restoring their appeal to students, faculty, staff and alumni and once again reflecting positively on the institution.

The Facilities Analysis considered the existing individual campus facilities needs and issues. Detailed information providing the basis for the following recommendations can be found in the appendix.



AD Building

Recommendations:

The master plan includes the recommendation to replace the existing packaged air conditioning units and the dispersed electric heat coils with a more centralized system. The new system will be located in the new Academic Support Building and distribute chilled and hot water to the AD Building. The AD Building would then be equipped with central station air-handling units that have the capability of supplying a variable volume of air to the occupied spaces while utilizing hot water for reheating. This system will be more energy efficient and will reduce a great deal of the maintenance associated with the existing system. The variable air volume design will allow individual zone control. This will improve space comfort, alleviating the existing significant temperature fluctuations between *perimeter and interior zones*.

Suggested Schedule:

Relocate Learning Center: Fiscal Year 08

Library Expansion at Learning Center: Fiscal Year 09

First Floor – South Wing, Administration Offices: Fiscal Year 09

Second Floor – South Wing: Fiscal Year 09

MP Building

Recommendations:

To improve building comfort and reduce humidity in the lower levels of the MP Building, it is recommended that a simple ventilation system be added to unexcavated crawl space. The ventilation systems will provide air changes in the space, venting high humidity air and associated odors to the outside. It is also recommended that CO2 sensors be added to in some locations to provide optimal temperature and humidity control. *Suggested Schedule: Fiscal Year 06*

The master plan includes recommendations to move the cafeteria (food services) to the new Academic Support Building and relocating the fitness room/facilities to this abandoned space in the MP Building. During these future renovations, it is recommended that the college re-commission air-handling unit #8 and verifying the size and operation. If the budget development and prioritized planning of relocating the cafeteria services slips three or more years, the college should consider adding supplemental cooling for the cafeteria. *Suggested Schedule: Fiscal Year 08 / 09*



There is an opportunity to reduce energy consumption in this building by converting the constant volume units to variable air volume systems. It is recommended that this work be performed during any of the space renovations. *Suggested Schedule: Fiscal Year 08/09*

AC Building

Recommendations:

There is an unexcavated area on the lower level across from the Business Technology Center. It is recommended that this unexcavated area be ventilated. The ventilation systems will provide air changes in the space, venting high humidity air and associated odors to the outside. It is also recommended that CO2 sensors be added to in some locations to provide optimal temperature and humidity control.

The through-the-wall Packaged Terminal Air Conditioners (PTAC) in the Northeast corner offices of the first and second floor are failing and the units are obsolete. The recommendation is to place a new roof top unit on the roof and install new ductwork to serve the first and second floor offices that currently contain the PTACs. One option considered, was reutilizing the recently removed Regional Training Center roof top unit (RTU#3). If the college proceeds with using this unit, the additional capacity would allow the college to extend ventilation ductwork to the existing HVAC lab. *Suggested Schedule: Fiscal Year 06*

It is *recommended* the college relocate the building automation controllers on the four Fine Arts rooftop units to prevent further heat damage to the controllers and ensure proper operation. *Suggested Schedule: To Be Determined*

An indoor air quality test revealed that there is excessive humidity in spaces within the Fine Arts Building. This building is currently served by heat pumps, with either individual room zone control or combination of rooms. There are five ventilation heat pumps that draw in outside air and temper the air for distribution to the remaining heat pumps. During low cooling loads the ventilation heat pumps will cycle to cool the outside air. As the compressors cycle off, the ventilation air is introduced into the spaces without being conditioned. Several of the individual heat pumps are oversized for the cooling load. This results in a significant amount of occupied hours where the supply air is not de-humidified before distributed throughout the building.

Johnson Controls recommends installing two de-humidifying roof top units to heat/cool and dehumidify the ventilation air for the internal spaces of the Fine Arts Center. New ductwork will be installed to combine the supply distribution ductwork from five ventilation units to two units. The air will be preheated during the



heating hours and supplied to the remaining individual heat pumps. During the cooling periods the ventilation units will cool the air down to temperatures where dehumidification occurs and reheat the air as required to satisfy the space cooling requirements.

This recommendation should be delayed to evaluate the effectiveness of adding ventilation to the unexcavated crawl space and exterior storm water remediation.
Suggested Schedule: Fiscal Year 08

CC Building

Recommendation:

The air source heat pumps are original to the building and should be replaced. They are in poor condition and replacement and repair parts are difficult to obtain. The recommendation is to replace these heat pumps with two ventilation roof top units. This will entail significant ventilation ductwork modifications, but the new system will require less energy to operate and will simplify maintenance.

Suggested Schedule: Fiscal Year 06 / 07

BC Building

Recommendations:

It is recommended that a hatch cover be installed in the mechanical room to limit the return air pulled through the mezzanine access. This hatch will limit the short-cycling of air handling unit and will enhance the ability to adequately maintain space temperatures in this addition. *Suggested Schedule: Fiscal Year 06*

It is recommended that the existing single-pane windows on the exterior corridor be replaced with double-pane, low-E glass to reduce the cooling load within the hallway. *Suggested Schedule: Fiscal Year 09*

Regional Training Center

Recommendation:

It is recommended that the college consider roof top unit #3 (rating of 15 tons of cooling and 5200 CFM) for replacing the Singer PTAC units in the AC Building or some of the EDPAC units in the CC Building (both were included as recommendations within their respective building breakouts). The unit should be thoroughly cleaned prior to relocating, to remove any kitchen odors that reside within the coils or unit systems. *Suggested Schedule: Fiscal Year 06*

EXISTING SITE UTILITIES

The purpose of this section is to describe in general terms, the utilities that serve the campus buildings on the Main Campus of East Central College. Working with McClure Engineering, Johnson Controls has documented the existing utilities servicing the main campus facilities with a focus on developing an understanding of campus facility expansion capabilities or limitations of the infrastructure.

The Appendix information documents the primary utility distribution systems throughout the main campus. The information in this appendix is an overview of existing utilities for planning purposes and while every effort was made to insure that the information contained herein is accurate, it should not be construed to be As-Built Documentation. The following items are documented in the appendix: Electric Service, Natural Gas Service, Liquid Propane Service, Water Service, and Sanitary & Storm Water Services. General comments and recommendations can be found below.

Recommendations to confirm integrity, functionality, life safety, and code compliance of utility distribution systems.

Electric Service:

A. Investigate and document electric services in the following buildings:

- CC Building
- AC Building
- Multipurpose Building
- Administration Building

The buildings are listed in our recommended priority. Although the Administration Building has significant electrical distribution concerns, its priority was lowered to coincide with the master plan renovation phases. Some of these recommendations will include the removal of the electric air-handling units in the roof penthouse and the replacement with natural gas driven systems or a central plant to be located in the new adjoining Academic Support Building. Both alternative systems will lower the electrical loads on the Administration Building and will allow the electrical services to be redistributed.

Suggested Schedule: Fiscal Year 06

- B. It is recommended that East Central College request AmerenUE test the insulation integrity of the primary feeders by method of a DC current hi-pot test. This requires electrical shut down with disconnection of the feeders from the mounting lugs at each end in order to perform the test. AmerenUE service group will need to provide the labor to disconnect, test, and reconnect the conductors. This test will establish a baseline status and determine if there are any weak points in the insulation that may develop into a failure. The feeders are nearing 35 years of age. *Suggested Schedule: Fiscal Year 06*
- B2. Alternately, it is recommended that East Central College infra-red scan each building's main switchgear as a baseline set of data and to detect if there are "hot" spots or areas of potential failures. Although owned by the Utility, we advise that East Central College have an infra-red scan of all splices and terminations to establish a baseline and verify insulation integrity and conductor continuity. This test will not require a shutdown and could identify any potential hot spots or future failure points at the wiring terminations and splices. This test cannot identify potential insulation failure along the conductor length as the DC hi-pot test would. This test should be performed when the energy usage is relatively high. *Suggested Schedule: Fiscal Year 06*
- C. Perform a similar prioritized action plan to that described above for addressing concerns in the main panels and the circuit breaker panels throughout the buildings. The older buildings on campus have obsolete Federal Pacific panels. Many of the circuit breaker panels have been utilized to their maximum capacity and many have multiple wire circuits connected to a single breaker (double and triple lugged). Federal Pacific circuit breakers have been known to fail to trip while conducting current at or above their rating capacity.
Suggested Schedule: Fiscal Year 06
- D. Although a concern has been raised that the electric service feeder to Classroom Buildings AC, BC, CC, the Regional Training Center, and South Parking Lot Lighting is routed under Classroom Building BC, it is the opinion of Chuck Dale-Derks, McClure Engineering, that this risk of potential failure due to building shifting is low since the Building foundations are mostly or entirely on rock. The greatest risk of failure to this feeder would occur during an earthquake. In the event of failure, generators would be required to provide temporary service to Classroom Buildings CC and BC, to Classroom Building

AC, and to the Regional Training Center. The anticipated maximum duration of need for temporary service could be about 2 weeks. The Infrastructure Report contains the probable cost to replace the feeder with a new route around the Administration Building and Classroom Building CC.

Suggested Schedule: Upon Failure, monitor for possible building shifts.

Natural Gas Service:

There are no service recommendations or needs at this time.

Liquid Propane Service:

There are two liquid propane tanks in service on campus with one tank in service to the Administration Building and another to Classroom Buildings CC and AC. The LP tank at the Administration building is adjacent to the North exterior egress stair (about 3' perpendicular distance and 6' from the end of the stair at grade). The current building Code requires a separation distance of 10' for a single LP tank of less than 1200 gallon, and a separation distance of 25' for multiple tanks or tanks larger than 1200 gallon. The LP tank serving Classroom Building CC does not allow a 10' clearance from a 10' wide pathway of egress from Classroom Building BC.

It is recommended these be abandoned and removed as time and funding permits. Lab, Domestic Water, and HVAC heating service usage should be converted to Natural Gas for safety considerations (LP is heavier than air and can create pools of a fuel rich atmosphere in low points in or under a building).

Suggested Schedule: Fiscal Year 08

Water Service:

All site water boxes in grass areas should be fitted with concrete surrounds.

Suggested Schedule: Fiscal Year 06

The valve box North of Classroom Building AC (Center section) needs to be cleaned out. The top extension and top cover should be replaced where broken at the hydrant South of Classroom Building AC between parking areas and at Classroom Building AC on the North side of the center section.

Suggested Schedule: Fiscal Year 06

Parking curbs should be placed in front of the two main valves to prevent damage from vehicular traffic. *Suggested Schedule: Fiscal Year 06*

Sanitary Sewer & Storm Water Services

Sewer Service:

Provide clean dirt (3" cover) from manhole South of Classroom Building CC and adjust surrounding grade.

Suggested Schedule: Fiscal Year 06

Storm Water Service:

A storage building rests partially on top of a site catch basin inlet and possibly affects water run off and capture capability. Remove or relocate storage shed.

Suggested Schedule: Fiscal Year 06

Two Storm water yard cleanouts in front of the Regional Training Center have broken (PVC) caps and dirt is restricting proper storm water flow. Replace with cast iron cover and concrete surround.

Suggested Schedule: Fiscal Year 06

A concern for storm line integrity has been raised. Ponding was not observed to be a problem. It may be beneficial to camera the storm mains along the North side of Classroom Building AC.

Suggested Schedule: As needed

Utility Analysis:

The graphic on the following page summarizes the past year's energy consumption for East Central College. This evaluation is part of a Johnson Controls database of 40 community colleges in Missouri and Illinois.

The ranking criterion used is the total utility cost per square foot. This includes electricity and natural gas costs. East Central College compared favorably to other community colleges within the database, ranking 4th lowest.

East Central College is primarily operated through electric services, including HVAC systems. Only three buildings on campus have natural gas, with total annual cost barely exceeding \$12,000 or less than 5% of the total annual utility costs of \$277,000. The enclosed load profiles (located in the appendix), expose the reliance on electricity for space heating, with annual electrical peak demands occurring in the month of January.

This appendix contains the following:

1. Utility Survey
 - Summary of Natural Gas and Electric annual consumption
 - Breakouts of individual annual utility meter costs
2. Department of Energy's eQuest building models of AD Building

East Central College
Campus Master Plan

JOHNSON CONTROLS, Inc.
Infrastructure Assessment

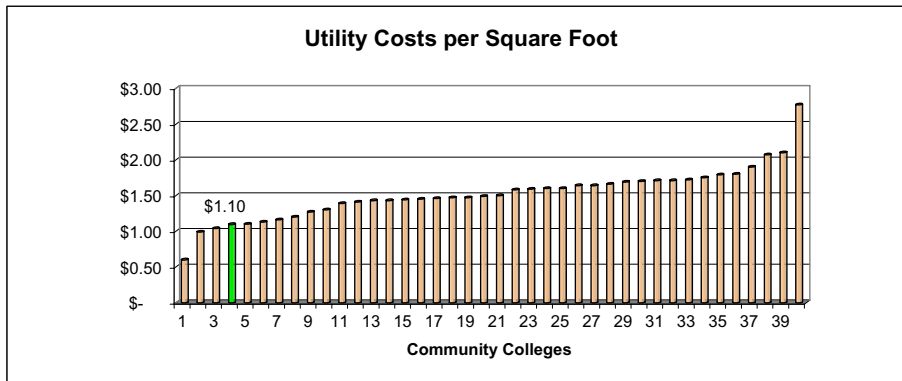


Facility Comparison Report
(Updated July, 2005)

Rank:	Facility Name	City:	State:	Sq-Ft:	Electric			Natural Gas			Total \$/SqFt	Total Cost	BTUs /SqFt
					KWH/SqFt	BTU/SqFt	KWH \$/SqFt	MMBTU /SqFt	Fossil MMBTUs	\$/SqFt			
4	East Central College	Union	MO	253,000	18.94	64,626	\$ 1.05	0.0047	1,191	\$ 0.05	\$ 1.10	\$ 277,297	69,333

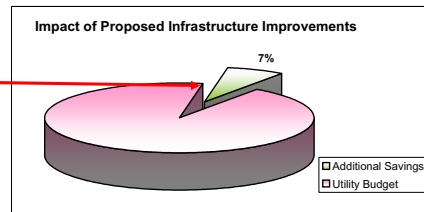
Data Base Average Cost / SqFt	\$ 1.32
AS&U 2005 National Benchmark for 2 Year Colleges Cost / SqFt	\$ 1.32

East Central College
Rankings Based on 40 Community Colleges



* Benchmark data based on Electric and Natural Gas Costs only

Optimal temperature and humidity control are not currently being provided. Implementing facility improvements to address these critical needs would likely offset any energy savings derived from the proposed energy conservation measures.



Proposed Infrastructure Improvements

- Replacement of Singer PTACs
- IAQ Ventilation Modifications
- Replacement of EDPAC Units
- AD Building Renovations
- Extended Predictive Services & Commissioning

8/25/2005



The LEED™ (Leadership in Energy & Environmental Design) Green Building rating System

Designing, constructing and operating campus facilities in an environmentally responsible way is an idea that's time has come for several reasons, not the least of which is that building green is not only good for the outdoor environment, but is also great for the indoor environment and for the people who live and work in these buildings.

A campus with energy-and resource-efficient buildings that are comfortable and productive spaces instills a positive, lasting, forward thinking and fiscally responsible perception among student, parent, staff, important constituencies and the surrounding community.

GREEN BUILDINGS WILL ONE DAY BE THE NORM AND NOT THE EXCEPTION!

Sustainable Solutions for Indoor Air Quality

Providing faculty and students with a healthful work environment is a basic responsibility. Concern about the effects of building air quality is a major issue among health experts and government agencies. The consequences of poor indoor air quality range from occupant dissatisfaction (odors, discomfort, irritation) to life-threatening conditions (Legionella, toxic vapors).

Most indoor air-quality problems can be traced to HVAC systems. Correcting the problem is usually as simple as providing adequate ventilation according to ASHRAE standards, maintaining proper temperature and humidity control, and keeping HVAC systems clean and in good working order. Regardless of the cause, Johnson Controls can help solve air-quality problems and keep East Central College buildings healthy.

Benefits:

- Better learning environment.
- Decreased student and faculty absenteeism.
- Reduced sick leave expenses.
- Less risk of liability and regulatory sanctions.

Steps to alter ventilation systems to improve Indoor Air Quality were included in the appropriate building system recommendations discussed previously. *More information regarding Indoor Air Quality test that were performed on campus can be found in the appendix.*

“Building Our Future”

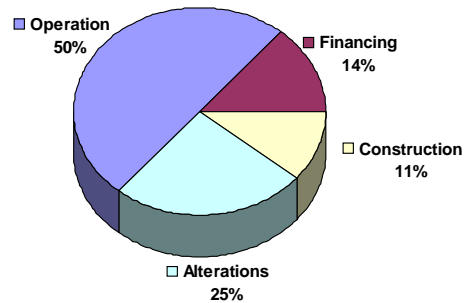
Many institutions of higher learning around the country understand that the traditional construction approach, which involves many parties focusing only on their particular component of the building and low initial costs, will yield minimal long-term benefit to their institution.

The life cycle cost of a building is only partially represented by the initial costs of design and construction. After all, initial construction and associated expenses are only 25 percent of the lifecycle costs of a building.

In contrast to the Traditional Construction approach, Sustainable Construction methodology begins with the end in mind, ensuring high facility performance at a lower lifecycle cost.

A well-designed and constructed building can save in energy usage, maintenance and operations allowing the college to generally recoup the added initial cost in less than five years with savings that continue for 40 more years.

Construction is only 25% of the lifecycle costs



Seventy percent (70%) of the building’s life cycle costs are committed with the first one percent (1%) of the upfront design / construction costs.

Indeed, an educational facility’s purpose goes beyond its construction. It is to provide a safe, healthy learning environment throughout its life.

Refer to the appendix for specific information on Sustainable Construction - ensuring high facility performance at a lower lifecycle cost.

As LifeCycle Infrastructure Program Manager, Johnson Controls has worked with Chiodini and Paric to provide lifecycle modeling simulations that will help East Central College and consulting partners balance up-front capital costs with the ongoing operational expenses created by alternative mechanical equipment and systems. A valuable component of the Sustainable building process and LEED™ is the completion of lifecycle evaluations for various components and systems within a building.

The following lifecycle modeling was completed for the proposed new **Allied Health & Life Sciences Building**, and can be extended to other new buildings and renovations within the existing campus buildings.

PROPOSED CONSTRUCTION BUDGET:	\$ 10,400,000.00	
TOTAL ANNUAL OPERATION & MAINTENANCE COSTS: (Traditional Design)	\$ 190,000.00	
Sustainable Design Impact to the Annual Operating Budget (Refer to Life Cycle Economic Analysis in the Appendix)		
Total O&M per square foot:	Sustainable \$ 3.96	Traditional \$ 4.99
Expected HVAC Systems Useful Life	25 Years	18 Years
Annualized Equipment Replacement Budget	\$ 59,400.00	\$108,500.00
Net Present Value of Sustainable over Traditional Design	\$1,939,000.00	
IRR of Incremental Investment for Sustainable Design:	25%	

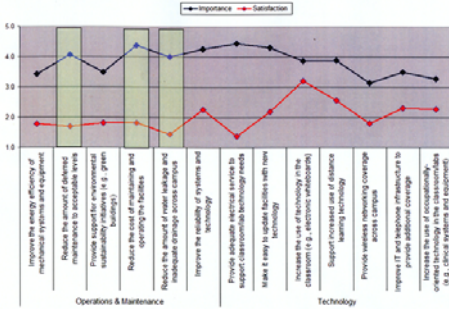
Preliminary system modeling of the new Allied Health & Life Sciences building indicate that energy cost alone will increase between \$60,000 and \$90,000 annually, the variance based on the HVAC system design selected for this building.

Supplement Capital Construction Budgets with Performance Contracting and the Missouri Department of Natural Resources low interest financing.

The college can proceed with the Missouri performance contracting legislation (M.R.S. 8.231.1) to include guaranteed lifecycle MEP construction costs contracts (construction, operations, and maintenance costs).

It is recommended that the college work with the Missouri Department of Natural Resources to consider alternative low interest financing for recommended capital infrastructure improvements where R.M.S. 640.651 (8) defines energy conservation measures as the “installation or modification of an installation in a building or replacement or modification to an energy-consuming process or system...”. This statute specifically defines the term “building” to include “initial installation in a new building”.

Needs Analysis (Operations and Maintenance, Technology)



There were three Operations and Maintenance needs that fell within the Improvement Quadrant, and received some of the highest priority ratings during the Ideation workshops. The Gap Analysis chart shown below highlights the large gaps between the **IMPORTANCE** ratings to the organization and **SATISFACTION** with the current situation. (The greater the GAP, the greater the opportunity for improvements):

- Reduce the cost of maintaining and operating the facilities
- Reduce the amount of deferred maintenance of acceptable levels
- Reduce the amount of water of water leakage and inadequate drainage across campus.

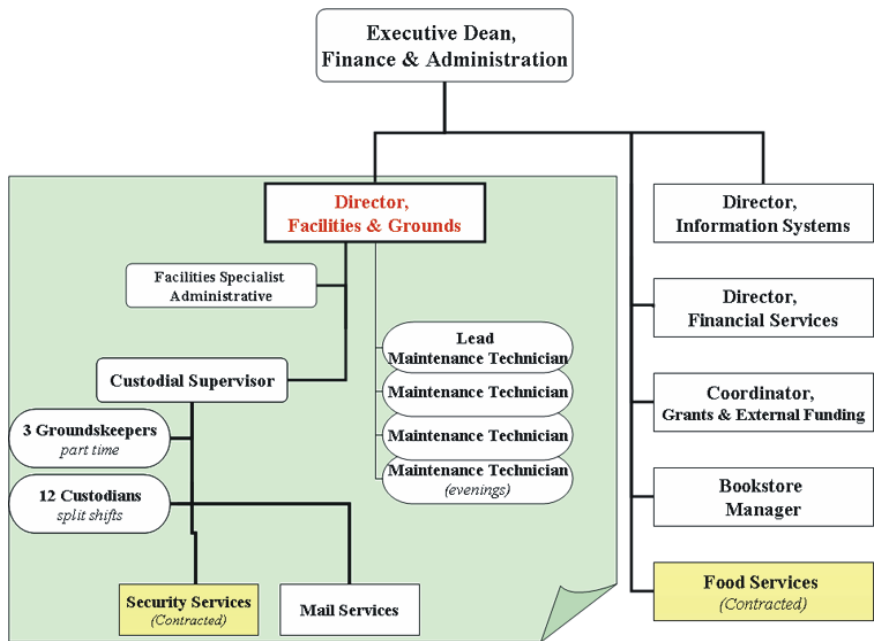
Operations & Maintenance Analysis:

Currently, most education institutions utilize only the basic operation and maintenance strategies to maintain their facilities. Education officials attribute the declining physical condition of America’s education institutions primarily to insufficient funds, resulting in decisions to defer maintenance and repair expenditures from year to year.

This stresses the importance to develop an effective maintenance program that is aligned with operation needs, focuses resources on critical areas and is supported by management systems and practices that lend themselves to executing maintenance activities on a timely basis.

There are many sources of information to benchmark East Central College Operation & Maintenance Costs. We elected to reference the recent O&M Annual Cost study of higher education by the *American School & University*.

The national average O&M Expenditures for 2-year Colleges as a percentage of the Total Operating Expenditures was 10%.



Recommendations:

The following are recommendations to improve East Central College’s ability to achieve controllable maintenance costs. Proposed operations and maintenance procedures will keep the equipment operating at peak efficiencies and extend the use of the existing systems as the college considers infrastructure priorities.

Implement Predictive Maintenance:

The college has an excess of 30 rooftop units, heat pumps, and split systems. The college should implement a phased predictive maintenance strategy for key pieces equipment across campus. A Rooftop Advanced Diagnostics Tool was used on five (5) units and identified efficiency improvements resulting in \$1,245 annual savings. This would translate into a potential annual savings of \$6,000 to \$8,000 annually. The measures would also improve the ability to adequately maintain building environments.

Expand Staff

The campus master plan includes adding an additional 72,000 sq.ft. through the construction of the Allied Health & Life Sciences Building and the Academic Support Building. Considering the higher level of deferred maintenance at East Central College and the number of environmental systems that will be in the new Allied Health & Life Sciences Building, it is recommended that the college consider supplementing the existing staff with:

1. An additional FTE Maintenance Technician and two (2) additional FTE Custodian,
2. Contract additional truck-based services to perform higher level maintenance on building systems, and/or
3. Hire student employees from the HVAC technology class on a revolving basis to augment the Facilities & Grounds department.

Commissioning

Many of the building spaces at East Central College have changed since the original building construction and/or HVAC systems serving these spaces have been renovated. It is recommended that the college re-commission the existing HVAC & building automation systems and include commissioning services with any new construction or future renovations.

Electrical Distribution Maintenance

As documented in the Existing Site Utilities section, it is recommended that the college implement a predictive maintenance inspection of existing electrical systems on campus. These services should include Infrared Thermography and Ultrasonic Testing.

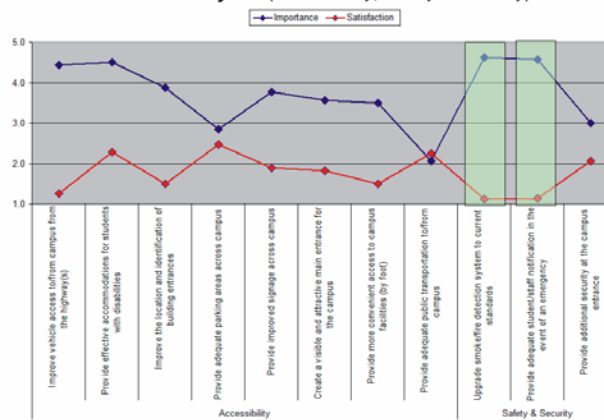
Life Safety Assessment

To improve safety and security was one of eight key facility strategies and critical needs identified in the early Ideation Workshops with a broad cross-section representation of faculty and students.

Two ele

Needs Analysis (Accessibility, Safety & Security)

orkshops:



1. Provide adequate student/staff notification in the event of an emergency
 - *In-house intercom would be extremely useful to know what the emergency truly is”*
 - *“We need an Emergency Notification System”*
“Use of an in-house campus intercom”
2. Upgrade smoke / fire detection system to current standards
 - *“Install smoke detectors”*
 - *“Provide radio warning system”*

Additional comments included a “better security presence on campus” and “consider Public/City water supply”. The college administration has asked Mark Eaton, Director of Facilities, to explore the merits of both recommendations.

The guidelines for campus life safety systems evaluation included:

- Exploring the appropriate means of distributing emergency communication throughout the campus building,
- Evaluating and prioritizing upgrades to the campus fire alarm system,
- Supporting relevant and adequate video/security initiatives, and
- Leveraging the college IT infrastructure to assist in supporting these initiatives.

The campus assessments and recommendations to maintain the integrity of the ECC life safety systems are outlined on the following pages.

A. Emergency Communications

The campus does not presently have in place any uniform “system based” communication approach to notifying students/staff/visitors as to any type of emergency that could impact the safety and well being of the occupants. Emergency events could include gas leaks, tornados, earthquakes etc. Presently, assigned staff, utilizing hand held announcement horns make manual announcements throughout the buildings. The key issue here is that in such emergencies, minutes can make a significant difference in the outcome. The existing procedure is both slow and inconsistent, and sends a subliminal apathetic message to staff, faculty and students.

Recommendation:

Install a communications system of supervised speakers to distribute specialized warning tones and pre-recorded messages throughout the campus. This would include supervised speakers located in each room, utility room, and corridors. The command center could be located in the Administration Building lobby or Facilities Department. It is also recommended that each system be interfaced to the college’s phone system/PBX switch. This will provide access to audio from any telephone. This can also provide the added value of announcement paging, and even the distribution of education based audio to general areas, selected classrooms etc.

This emergency notification solution is ideally suited for a phased program by building.

Phase I: Establish Command Center location and extend communication network in AC, BC CC buildings. Higher priority was given to these buildings due to the multiple classrooms and labs within these three buildings, making it nearly impossible to adequately respond in a timely fashion with the current system in place.

Suggested Schedule: Fiscal Year 06

Phase II: Extend communication to Regional Training Center.
Suggested Schedule: Fiscal Year 06 / 07

Phase III: Administration and Multipurpose buildings. These two buildings would benefit from the emergency notification system earlier, but building asbestos would likely prohibit extensive services. Therefore, these buildings should be considered after asbestos abatement. Proposed Administration Building renovations in the campus master plan should be completed prior to, or in conjunction with, the proposed emergency notification system.
Suggested Schedule: Fiscal Year 07 / 08

B. Fire/Life-Safety

The campus presently does have a fire detection and warning system in each occupied space throughout the campus. Due to age, and the change in building codes, protection is deficient in a number of areas. The older buildings utilize many detectors sharing a common point. Re-configuring these to addressable sensors could reduce your investment in the required testing/inspection process.

Specific to Administration Building:

The fire sprinkler system in the Administration Building is deficient and likely would not meet code if any renovations were performed on the building. These areas cannot be disturbed until the asbestos spray-on fire proofing of the beams & overspray and ceiling tiles were abated. Thus prohibiting any improvements to the existing sprinkler system until this is completed.

Suggested Schedule: Fiscal Year 08 / 09

As the college waits to perform professional abatement services, the college should consider an interim approach to improve early fire detection by adding smoke detection in the (6) penthouse air handler units in the Administration Building.

C. Entry Management

Traditional locks are used on perimeter and interior doors to provide basic security. The computer / science rooms are presently equipped with digital locks. As many as (10) students share these codes, and no method exists to perform an audit trail. Maintenance staff presently must change these codes manually at the completion of each semester.

Recommendation:

It is recommended that these computer/science rooms be equipped with a remotely managed system that would allow you to make administrative changes remotely, with full audit trail capability. This would include proximity card access readers at each of these classrooms.

The security server / management system would represent a significant portion of this initiative. This platform can automatically make user changes based on class schedules through optional data base links. Other uses could include a means of validating usage to meet student credits. This also provides an initial platform for entry control throughout the campus, which can include future on-site as well as off-site buildings.

Suggested Schedule: Fiscal Year 07 / 08.

Proceed with computer labs in conjunction with the New Allied Health and Life Sciences construction project. Existing science labs would be renovated for other program needs and would likely not require proximity access control in the future.

D. Video & Security Initiatives

Video cameras are presently installed in approximately (40) areas on the main campus, and (8) areas at the remote campus. We are certainly aware that the crime exposure in the city of Union area is low, compared to larger urban campus settings. However, faculty, students and their families have a basic expectation of safety in any setting; and there are areas that the existing cameras do not adequately cover. Colleges are increasingly named in litigation by victims of campus crimes.

Several recent developments and incidents however, have increased the level of awareness for security. These primarily involve the theft of several newly acquired mini-computers in the AD Building computer lab. Due to the increasingly smaller design of the main CPU units, and the larger monitors, it is becoming more difficult for the instructors to monitor potentially inappropriate activities of the students. It is believed that these were taken during classroom hours.

Recommendations:

Provide video cameras in computer labs, and all areas that are difficult to supervise. Since many of these buildings presently already have network based video units, the cost impact to add additional cameras is minimal.

It is recommended that consideration also be given to protecting individual units, which would alert the instructor and automatically activate the recorder if an attempt is made to remove the CPU.

Add outdoor cameras in the parking and areas between buildings to enhance general safety.

Administration Building: Mount two (2) additional cameras to the exterior building and two (2) surface mount smoke dome enclosures on the 2nd floor. Interface to the existing digital recorder.

Multipurpose Building: Mount four (4) additional surface mount cameras with smoke dome enclosures to the interior space (bookstore, gymnasium, and lobby on 2nd floor). Interface to the existing digital recorder.

BC Classroom: Mount two (2) additional surface mount cameras with smoke dome enclosures to the interior space (in the landing and corridor to AC building). Interface to the existing digital recorder.

Regional Training Center: Mount five (5) additional cameras to the exterior building (2 in front and back each, and 1 on Northwest side). Interface to the existing digital recorder.

Suggested Schedule: Fiscal Year 06 / 07.

The existing practice of mounting cameras on building exteriors can create a perception of a detention center, and students and staff may acquire a feeling of intrusion to their life styles. To avoid this, cameras can be mounted aesthetically on campus exterior light fixtures or campus banner columns.

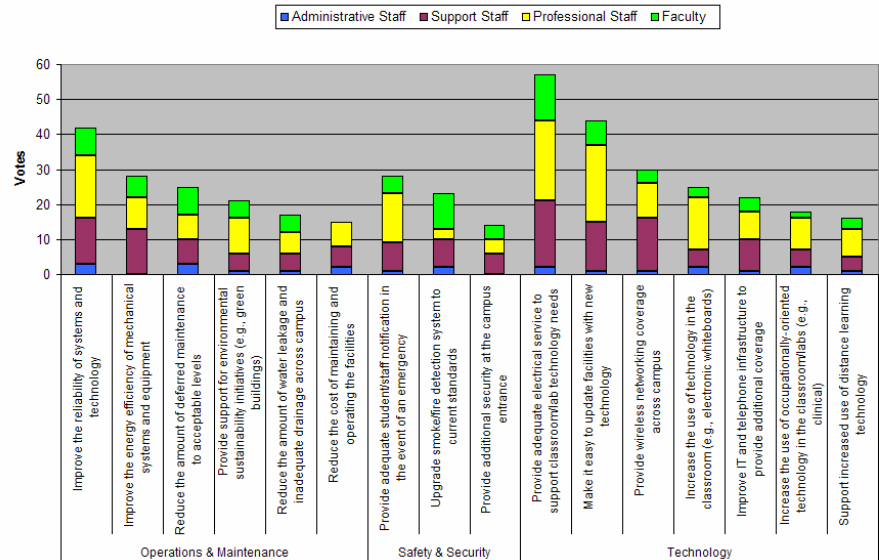
E. Campus IT/Network Implications

Presently, the campus LAN is used only to access the video servers from the facility office. As the elements of the security recommendations are implemented, it would be cost effective to expand the use of this network for communications. This typically would be to provide support for access system door controllers and security video servers.

Bandwidth resources for most security related systems is very limited, however if enhancements/additions are made to the video security system, network based cameras can provide a very cost effective means of providing protection.

The administration of various sub-systems can be remotely managed from their specific work areas, or from any validated location on the network. (i.e. security/facilities can administer the entry and video systems, HR the photo ID system, administration the data base integration etc.)

Needs Assessment - Faculty & Staff Prioritization



Facility Infrastructure Condition Assessment

This Facility Infrastructure Condition Assessment is a management tool for Capital Asset Planning. The condition assessment encompasses the primary campus buildings.

The *Objective* is to integrate Operations & Maintenance decisions with the overall business plan for the college by:

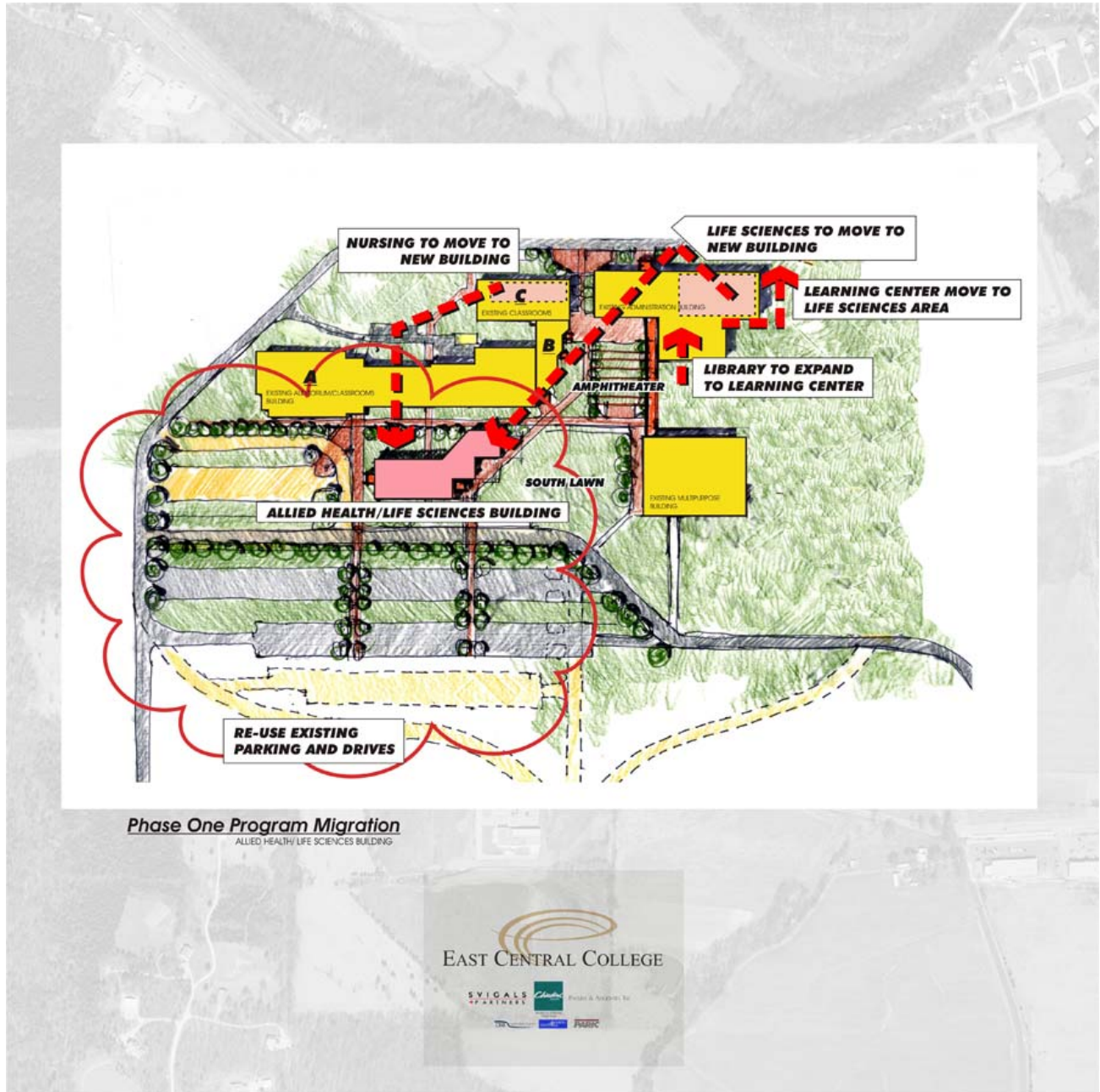
- Quantifying preventive maintenance, corrective/deferred maintenance issues and the rate of deterioration on campus
- Quantifying the magnitude of the current facilities building value to the campus
- Integrating the maintenance process into business management
- Balancing maintenance needs with available resources
- Shifting the operational paradigm from tactical to strategic
- Articulating effort and the result of effort to campus-wide constituents
- Increasing credibility with Trustees, Administration and Students

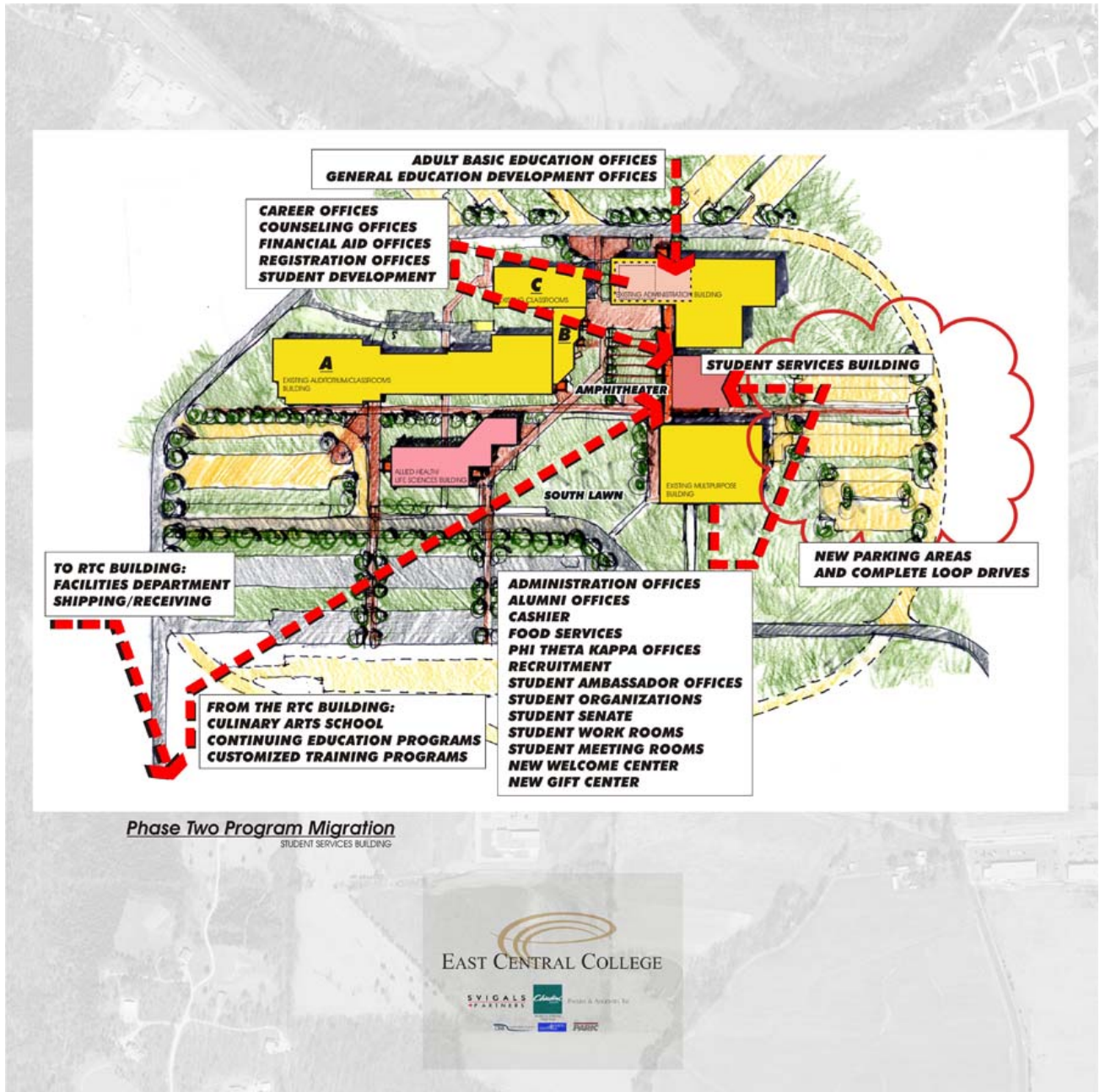
Recommendation:

Establish an annual Deferred Maintenance Budget to allocate funding for major repairs or replacement of life safety systems; heating, ventilation and air conditioning systems; utility infrastructure; and building automation systems for the correction of Building Deficiencies to provide optimal environments and conform to building and safety code regulations.

Suggested Schedule: A five-year budget cycle, where projects will be prioritized annually and effectiveness will be validated by various performance measurements.









EXISTING MULTI-PURPOSE BUILDING BEYOND



"IMAGE" FROM HIGHWAY 50

EXISTING CLASSROOM BUILDING BEYOND



"GATEWAY TO KNOWLEDGE"

ELEVATION CONCEPT STUDIES



EAST CENTRAL COLLEGE

Proposed Campus Master Plan

SVIGALS
+ PARTNERS

Chodine
ASSOCIATES

PAULIEN & ASSOCIATES, INC.

Architecture + Planning
Design Group

CBB
Crawford, Blain, Bannister
Public and Transportation Engineers

JOHNSON
CONTROLS

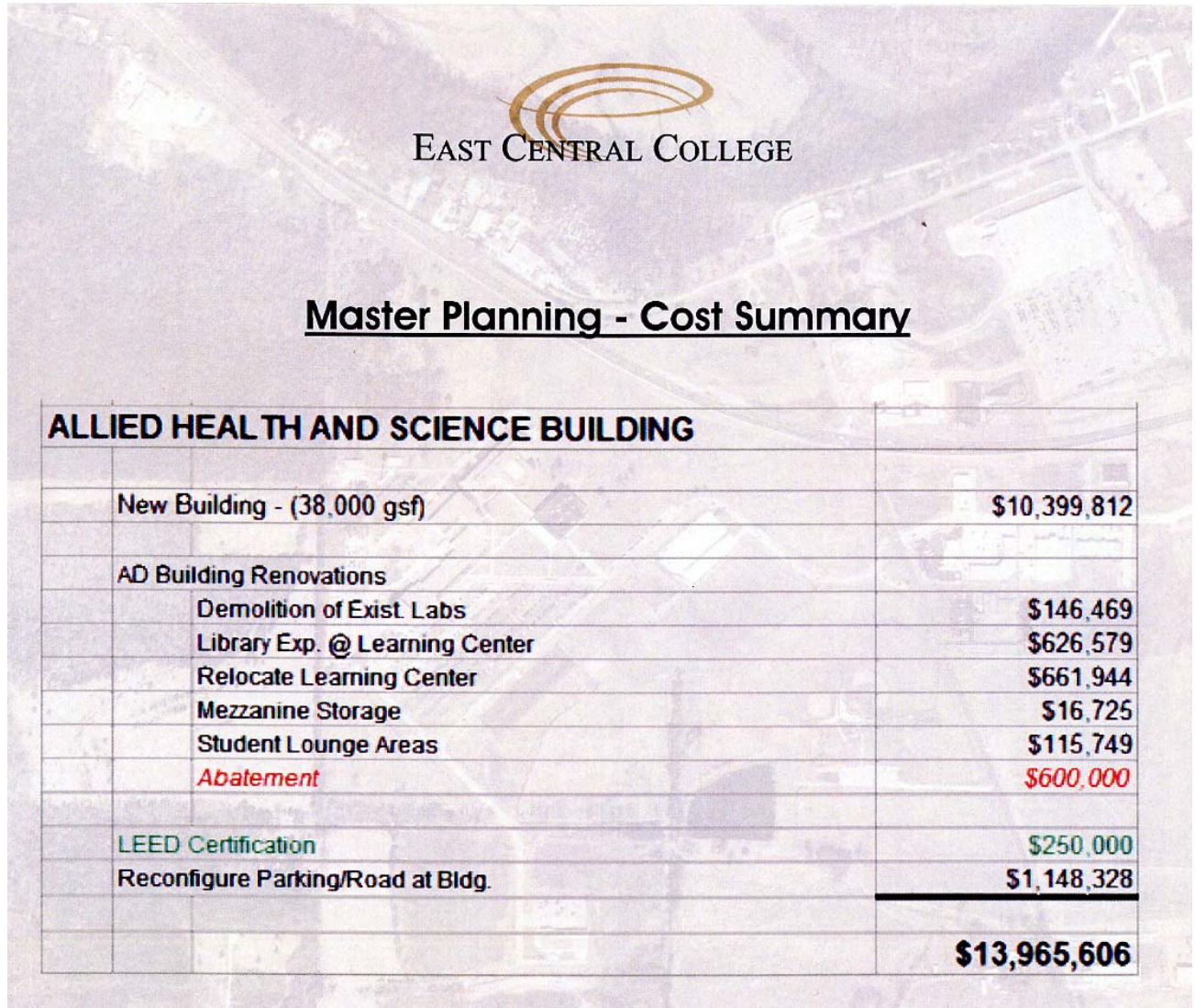
PARIC



EAST CENTRAL COLLEGE

Master Planning - Cost Summary

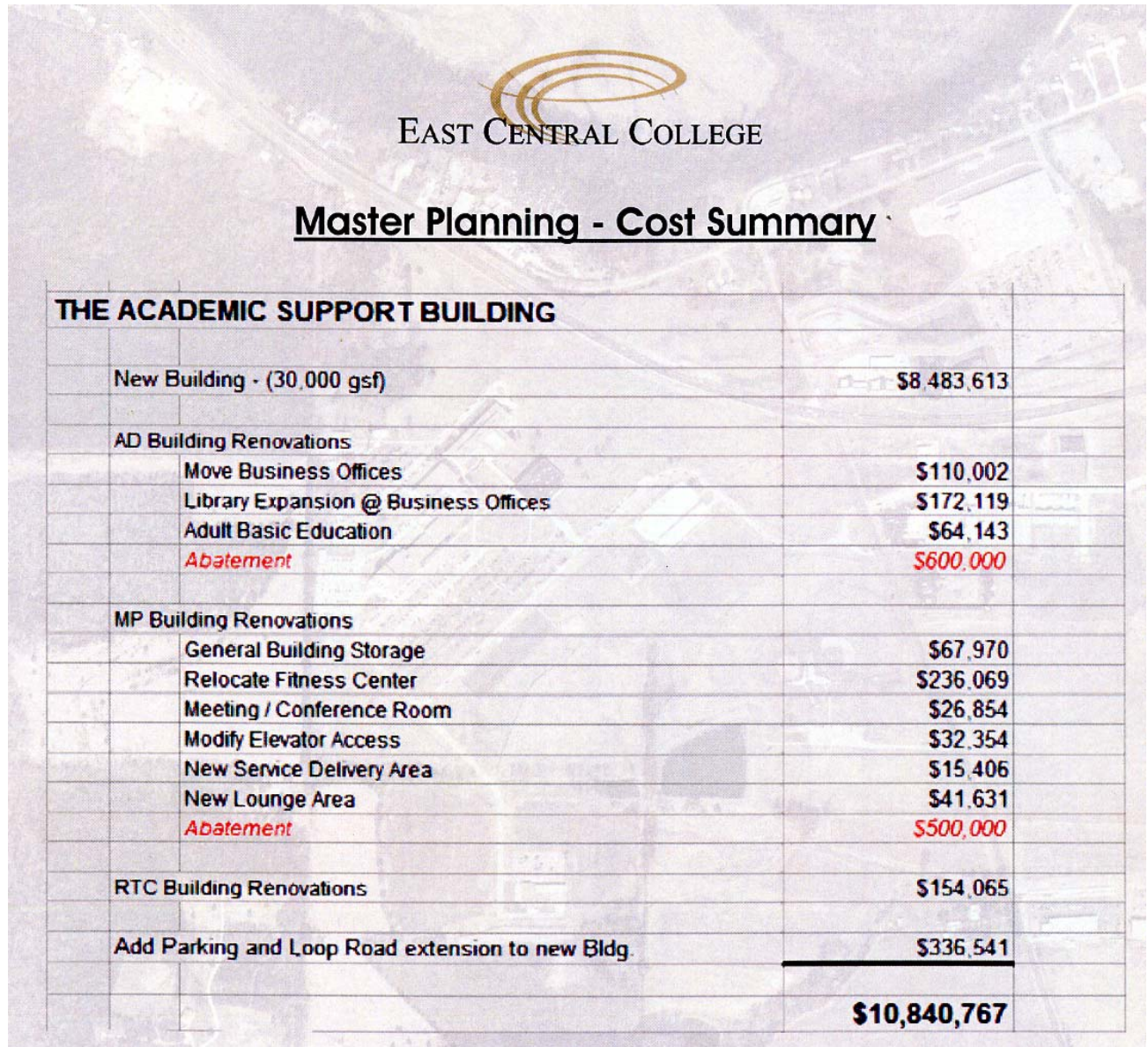
SITE WORK	
Road @ RTC Building to New Development	\$85,519
New Loop Road	\$500,882
New Entry Road	\$689,869
Additional Parking lot at the Administration Building	\$272,559
Additional Parking Lot South of the Proposed "Loop Road"	\$239,267
Repair, Overlay Existing Road/Parking Lots	\$227,775
Prairie Dell Road / Highway 50 - Short Term Improvement	\$400,000
Water Tank Demolition	\$120,000



EAST CENTRAL COLLEGE

Master Planning - Cost Summary

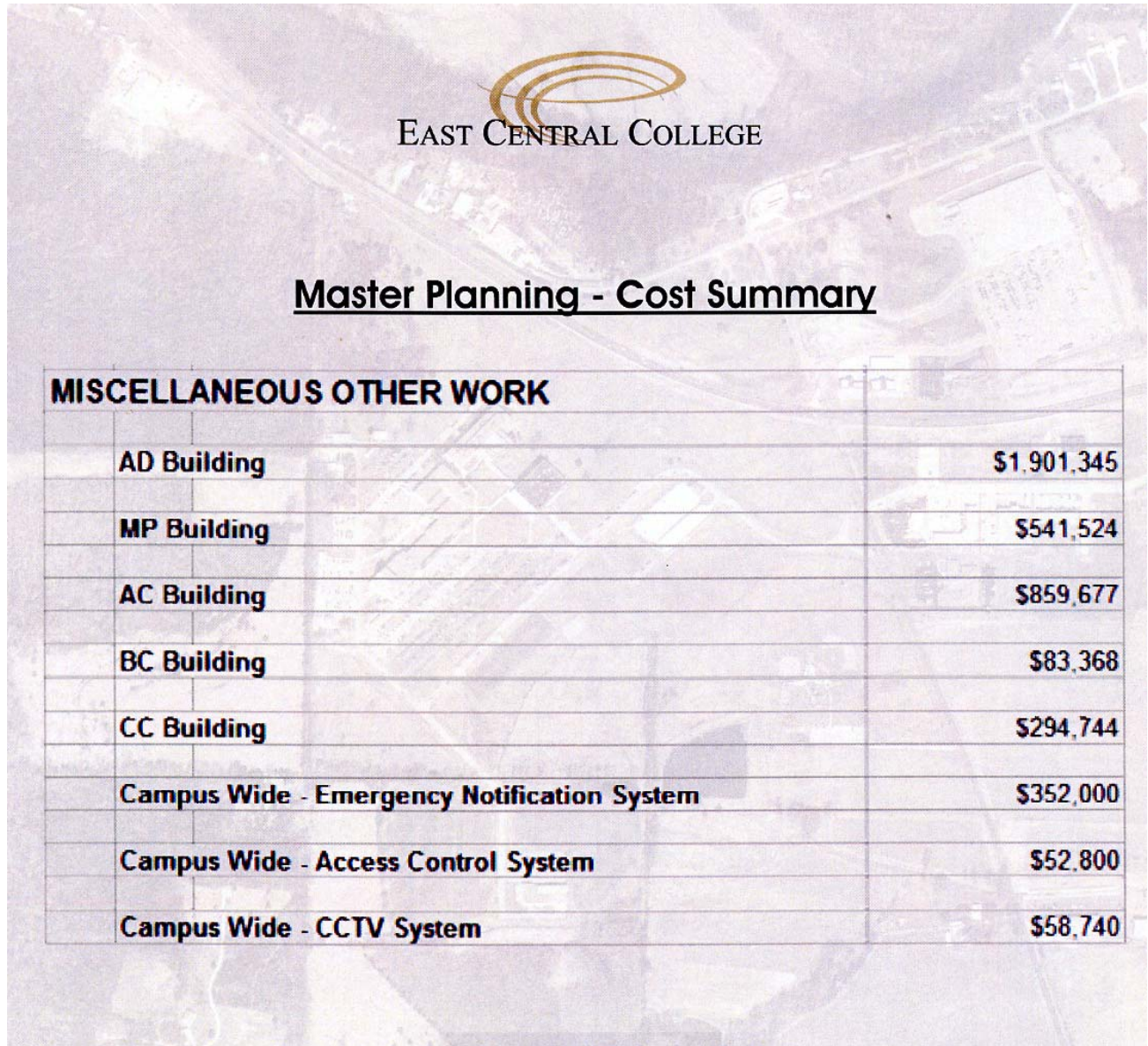
ALLIED HEALTH AND SCIENCE BUILDING		
	New Building - (38,000 gsf)	\$10,399,812
	AD Building Renovations	
	Demolition of Exist. Labs	\$146,469
	Library Exp. @ Learning Center	\$626,579
	Relocate Learning Center	\$661,944
	Mezzanine Storage	\$16,725
	Student Lounge Areas	\$115,749
	<i>Abatement</i>	<i>\$600,000</i>
	LEED Certification	\$250,000
	Reconfigure Parking/Road at Bldg.	\$1,148,328
		\$13,965,606



EAST CENTRAL COLLEGE

Master Planning - Cost Summary

THE ACADEMIC SUPPORT BUILDING		
New Building - (30,000 gsf)		\$8,483,613
AD Building Renovations		
Move Business Offices		\$110,002
Library Expansion @ Business Offices		\$172,119
Adult Basic Education		\$64,143
<i>Abatement</i>		<i>\$600,000</i>
MP Building Renovations		
General Building Storage		\$67,970
Relocate Fitness Center		\$236,069
Meeting / Conference Room		\$26,854
Modify Elevator Access		\$32,354
New Service Delivery Area		\$15,406
New Lounge Area		\$41,631
<i>Abatement</i>		<i>\$500,000</i>
RTC Building Renovations		\$154,065
Add Parking and Loop Road extension to new Bldg.		\$336,541
		\$10,840,767



EAST CENTRAL COLLEGE

Master Planning - Cost Summary

MISCELLANEOUS OTHER WORK	
AD Building	\$1,901,345
MP Building	\$541,524
AC Building	\$859,677
BC Building	\$83,368
CC Building	\$294,744
Campus Wide - Emergency Notification System	\$352,000
Campus Wide - Access Control System	\$52,800
Campus Wide - CCTV System	\$58,740