UNIVERSITY OF HAWAII
MANOA CAMPUS
COLLEGE OF EDUCATION

PROJECT DEVELOPMENT REPORT

VOLUME I

DAGS No. 12-31-3199

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July 1994
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EXECUTIVE SUMMARY

This Project Development Report (PDR) has been prepared to assist the University of Hawaii in revising its master plan for the College of Education to meet current and projected needs. It represents an update of programmatic requirements and a review of the long range goals for the College. In this effort, the master plan was revised, an architectural program developed and a phasing plan proposed. The report is divided into two volumes and includes a separate Environmental Assessment. It is intended to begin the implementation of the long range development plan for the college of education. Volume I is the main report with Volume II providing detailed room description sheets and background information on design standards and decisions. The Phase I development will be the first step in the implementation process.

**Project Site:** The College of Education is located on a 15-acre site separated from the central portion of the Manoa Campus by University Avenue; thus lending itself to a self-contained “mini-campus” quality. Generally, most of the structures on the site are of wood construction built prior to, or during, World War II. The exceptions are Wist Hall, Wist Hall Addition, Wist Annex, the Multi-purpose Building, and the High School 3 Building which are all of masonry and/or concrete construction.

**College Goals:** The College of Education’s goals are to strengthen its academic programs and serve Hawaii’s educational needs by providing outstanding teachers, administrators, and support personnel for DOE schools. A measure of the College’s effectiveness in achieving this goal would be attaining national accreditation. Accreditation by the National Council for Accreditation of Teacher Education (NCATE) is presently hampered by a severe lack of modern, quality facilities. Present facilities are seriously overcrowded, noisy, hot, and inappropriately designed for teaching with modern equipment, such as computers and audio/visual technologies.

The COE is also charged with expanding and improving its outreach program of teacher education and assistance for the neighbor islands where teacher shortages currently exist and teacher preparation programs are unavailable. The development of a permanent outreach extension program is proposed to augment the number of neighbor island teachers by 100 graduates per year.

**Project Scope and Description:** The scope of this project development report (PDR) covers the entire revised master plan (Figure 1) with a more detailed description and definition of Phase 1 facilities (Figure 2).

The revised Master Plan includes a summary and assessments of Wist Hall and Wist Hall Addition renovations, but does not include detailed descriptions of these spaces as this was beyond the scope of this contract. The revised master plan includes a total of 233,256 s.f.: 26,026 s.f. for Wist Hall, 17,280 s.f. for Wist Addition, 58,155 s.f. for Phase I, and 131,795 s.f. for Phases II and III. The Table 1 summarizes the breakdown of spaces.

The design concept is based on the idea of a mini-campus within the University with courtyards, malls and arcades connecting various spaces that are functionally related. Architectural themes will be compatible with Wist Hall and borrow from examples like
the Honolulu Academy of Arts. The master plan redesign and programmatic changes accommodate revised priorities and new building constraints. The phasing plan is also established to provide a practical sequence for implementation. Phase I facilities are sited and planned to minimize disruptions and maximize program priorities.

Phase I facilities will be clustered around a prominent location fronting Metcalf Street, adjacent to Wist Hall Addition and the existing parking lot. The Laboratory School facilities will have easy access to Metcalf Street. Laboratory School classrooms look out onto a semi-enclosed courtyard open towards Wist Hall. A three-story section containing faculty and research office spaces will lie behind the classroom facilities. Phase I facilities will require demolition of three buildings - the High School 1 and 2 Buildings and Wist Annex. Functions presently housed in these buildings will be temporarily accommodated in other structures. Depending upon the timing of additional funding, the construction of a new surface parking area in front of the existing Elementary School Building and a service road from Metcalf Street will permit removal of the existing parking lot and its replacement by a grassy quadrangle and walkways. The University has the option of nearly doubling the number of parking spaces by later erecting a parking deck structure above the surface parking area, with only the top level being visible from Metcalf Street. A summary of Phase I spaces is presented in Table 2.

Future phases will be developed after the relocation of the parking area. The Cafeteria and Auditorium/Drama functions will be accommodated in a renovated and expanded Multi-purpose Building. A renovated and expanded High School 3 Building will contain the College classrooms and research office functions, and will complete the enclosure of an existing semi-open courtyard space. This building would also be linked through a two-story arcade to the facilities constructed in Phase I. The Arts and Physical Education facilities will be located Ewa of the Phase I facilities, adjacent to the parking structure.
# TABLE 1

**MASTER PLAN SPACE SUMMARY**

1. Wist Hall Renovation  &  26,026  &  ASF  
2. Wist Addition  &  17,280  &  
3. Learning Resource Center  &  19,835  &  

### Subtotal  
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<tr>
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<td>63,141</td>
<td>ASF</td>
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4. Curriculum Research & Development Group (CRDG)  
   a. English  &  4,315  &  ASF  
   b. Mathematics  &  5,425  &  
   c. Science  &  14,470  &  
   d. Second Language  &  4,015  &  
   e. Social Studies  &  4,315  &  
   f. Evaluation  &  3,050  &  
   g. Art  &  12,000  &  
   h. Music  &  12,050  &  
   i. Drama  &  12,800  &  
   j. Pre-School  &  3,100  &  
   k. K-G+2  &  3,700  &  
   l. GR3-GR-5  &  3,700  &  
   m. Media Production  &  7,200  &  
   n. Physical Education  &  26,200  &  
   o. Lab School Administration  &  2,500  &  
   p. CRDG Administration  &  4,550  &  
   q. Other School Areas  &  46,725  &  

### Subtotal  
<p>| | | |</p>
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<td>170,115</td>
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TOTAL  
|     | 233,256 | ASF  |
TABLE 2

PHASE I & I A SPACE SUMMARY

Phase 1

Curriculum Research and Development Group

<table>
<thead>
<tr>
<th>Subject</th>
<th>Space (sq ft)</th>
<th>Type</th>
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<tbody>
<tr>
<td>English</td>
<td>4,100</td>
<td>ASF</td>
</tr>
<tr>
<td>Mathematics</td>
<td>5,125</td>
<td></td>
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<tr>
<td>Science</td>
<td>10,970</td>
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<tr>
<td>Second Language</td>
<td>3,500</td>
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<tr>
<td>Social Studies</td>
<td>4,100</td>
<td></td>
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<tr>
<td>Lab. School Administration</td>
<td>2,500</td>
<td></td>
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<tr>
<td>Other School Areas</td>
<td>5,425</td>
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<tr>
<td>Other Research Areas</td>
<td>1,600</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>37,320</strong></td>
<td><strong>ASF</strong></td>
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Phase 1A

Learning Resource Center

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<th>Area</th>
<th>Space (sq ft)</th>
<th>Type</th>
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<tr>
<td>Library</td>
<td>10,875</td>
<td>ASF</td>
</tr>
<tr>
<td>Classrooms</td>
<td>4,550</td>
<td></td>
</tr>
<tr>
<td>Office/Support</td>
<td>4,410</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>19,835</strong></td>
<td><strong>ASF</strong></td>
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**TOTAL**                      | **58,155**   | **ASF** |
SECTION 1.0
INTRODUCTION

Purpose

This Project Development Report (PDR) will serve as a guide to the implementation of the revised master plan. The master plan was revised to accommodate changing priorities and goals of the College of Education. This report will cover the revised Master Plan, a phasing plan to direct the sequence of development, a detailed architectural program for Phase I, and general descriptions of subsequent phases. An Environmental Assessment is also part of this PDR but is packaged as a separate document to process it through procedures pursuant to H.R.S. Chapter 343 and Chapter 200 of Title 19, Department of Health, Administrative Rules.

Background

The Manoa Campus is the main campus of the multi-campus, statewide University system. The present enrollment is approximately 18,000 students for the regular session. One of eleven colleges comprising the University, the College of Education (COE) exists to develop and enhance education at all levels, including pre-school, elementary, secondary, college, and adult education.

The COE is comprised of nine instructional departments and a Curriculum Research and Development Group (CRDG). The nine instructional departments are Curriculum and Research; Educational Administration; Educational Technology; Counselor Education; Educational Foundations; Health, Physical Education, and Recreation; Special Education; Educational Psychology; and Field Services. Also under the direction of the Dean are offices for Administrative Services, Student Services, and Academic Affairs. The CRDG encompasses both a laboratory school and curriculum research functions, although organizationally these distinctions are not apparent. Figure 3 presents an organizational chart of the College of Education.

The Bachelor’s in Education and Bachelor’s in the Science of Recreational Leadership degrees are offered by the College. The Master’s and Doctorate degrees in Education and Educational Psychology are also offered along with a Fifth-Year Professional Diploma teaching certification in elementary and secondary education. Currently, the College graduates approximately 425 students a year.

The Curriculum Research and Development Group (CRDG) within the COE conducts research and development in the subject areas and concerns of the school curriculum, publishes related materials, and provides training services to Hawaii’s schools. The University Laboratory School is the the principal place where CRDG’s educational research and development takes place. The University Laboratory School is a small but comprehensive school serving approximately 350 pre-school, elementary, and secondary school students representing Hawaii’s diverse population.
College of Education/University Lab School

Organizational Chart of the College of Education

Office of the Dean of the College of Education

- Administrative Services
- Office of Student Services
- Academic Affairs
- Experiment Programs
- Laboratory School
- Laboratory School Catechesis
- University Laboratory School
- Research and Development Group
- Curriculum Research and Development Group

Office of Field Services

- Department of Curriculum & Instruction
- Department of Education Administration
- Department of Education Technology
- Department of Counselor Education
- Department of Education Foundation
- Department of Health, Physical Education, & Recreation
- Department of Special Education
- Department of Psychology

Figure 3
SECTION 2.0

GOALS AND MISSION

The mission of the College of Education is to prepare personnel for schools and other educational settings, to develop the current professional educational staff, pursue research, and provide the expertise to improve the quality and availability of services to the educational community.

To fulfill its purpose the College of Education has established the following goals:

- Attain national accreditation.
- Facilities expansion and improvements.
- Support a 29% (125 students) increase in graduates by 1995.
- Provide outreach to the neighbor islands.
- Improve and increase educational research.
- Expand the graduate program into the Pacific Region.
- Support and utilize advancements in educational technology.

In its mission, the COE is a college and graduate school with the following functions:

- To prepare teachers, recreational leaders, and other educational personnel;
- To provide continuing education and training for current teachers and recreational personnel;
- To provide information for understanding educational issues to school and community groups;
- Through the Curriculum Research and Development Group (CRDG) arm of the College, to develop school curricula and trial demonstrations of instructional materials and methods;
- Through the Laboratory School facility of the CRDG, to conduct basic and applied research concerning issues in education.
SECTION 3.0
NEEDS STATEMENT

The facilities of the College of Education are old, inadequate, out of date and many of the buildings are no longer feasible to repair or renovate. Spaces and facilities are obsolete and do not meet current educational guidelines and standards for offices, classrooms or special educational requirements. Total space available is inadequate to meet existing needs and severely limits the achievement of goals for expanded services and programs. Functional relationships are far from ideal.

The College of Education’s primary goal is to bring its current programs up to an acceptable level where they are academically strong and serve the needs of Hawaii by providing outstanding teachers, administrators, and support personnel for DOE schools. A measure of this goal would be attaining national accreditation from the National Council for Accreditation of Teacher Education (NCATE) (See Appendix A for criteria). The lack of appropriate classroom and laboratory space, a curriculum center and appropriate support staff have made it difficult for the College to achieve accreditation. Although the renovation of Wist Hall eliminates many of the physical deficiencies, the expansion of facilities and additional improvements are necessary.

The College anticipates receiving additional State appropriations to expand its enrollment to help alleviate the existing and projected State teacher shortages. The College’s goal is to graduate an additional 125 students a year - to expand its annual graduation number from 425 to 550 students per year by 1995. There is a projected increase in need for ten counselors per year, for 15 special education teachers, and for 100 teachers targeted for secondary education areas experiencing shortages within the State Department of Education (DOE) by 1996. To accomplish this goal, as well as the need to provide for more time for faculty research, it will be necessary to increase the number of faculty within the College.

Teacher shortages also exist on the neighbor islands, particularly Kauai and Maui, where teacher preparation programs are unavailable. The College will assist in this goal by providing instructional programs through telecommunication systems which would provide a professional diploma program for individuals who have already completed their baccalaureate degree in Arts and Sciences and need to be certified as teachers. Once this program is operational, the College would then work with the College of Arts and Sciences to provide the necessary coursework to allow students to complete their undergraduate degree in education on Maui and Kauai.

To demonstrate innovations in teaching methods, the College seeks to acquire and use state-of-the-art educational technology. For instance, to improve community outreach to rural areas and neighbor islands, closed circuit television teaching is proposed through broadcasts from the University. Audio-visual communication systems and computers are already in use in teaching at all levels, and their uses are expected to expand.
There is a potential for providing technical and academic assistance to developing and emerging institutions of Pacific and Asian countries. This goal involves increasing the number of faculty with qualified knowledge and experience. Improved and expanded research activities are desired to enhance the quality of education.
SECTION 4.0
PLANNING ASSUMPTIONS AND METHODOLOGY

This Project Development Report is the culmination of months of effort on the part of the University of Hawaii/Manoa, Group 70 International, Inc. and other consultants. The Dean of the College of Education and his administration, including the principal administrators of the Curriculum Research Development Group and the Laboratory School, actively participated in the planning and programming of the proposed new facilities. The Facilities Planning and Management Office (FPMO) at the University and the State Department of Accounting and General Services (DAGS) have overseen and facilitated the planning process.

A draft architectural program and a revised College of Education Master Plan were prepared. Anticipated users participated in defining space needs and relationships as well as providing detailed room and space specifications. Space relationships of major groups of spaces were determined and represented by “bubble” diagrams. Furniture and equipment layouts of typical and special rooms tested assumptions about whether adequate spaces were allocated for the required functions. The total space requirements for the University Laboratory School and CRDG have been determined by this process. The space requirements of the College functions not presently satisfied by Wist Hall and Wist Hall Addition were also determined through this process. These spaces include the Learning Resource Center, the research offices, and the shared classroom facilities. Existing College facilities found to be satisfactory were not analyzed, and were accepted as given for master planning purposes.

A Conceptual Master Plan and a phasing plan were prepared and presented to the State Legislature. Priority was given to providing classrooms and faculty offices for the core academic courses of the intermediate and high school levels of the Laboratory School. Priority in Phase I was also given to the Learning Resource Center. The Center is intended to consolidate the written and audio/visual curriculum resource materials, provide additional student conference rooms and microcomputer stations, accommodate advanced telecommunications and closed circuit television equipment for use in the College’s outreach program and help reach the College’s goal of accreditation. Future phases were outlined.

Following the determination of facilities to be included in Phase I, the architectural program was refined. Individual rooms and spaces have been described in detail including information such as the number of occupants; the activity or function, the required equipment or furniture; environmental attributes needed; special features required; and the particular access, utilities, security, and communication capabilities required. With this information, the architectural design team may undertake design and the mechanical and electrical engineering consultants may provide appropriate systems for the new buildings. With the programmatic detail provided, a rough cost estimate and construction schedule have been prepared. As required by State and Federal laws, an environmental disclosure process is being followed. An Environmental Assessment for the project has been prepared and is in the process of public review as this report is submitted.
Discussions with the State’s Historic Preservation Division (SHPD) of the Department of Land and Natural Resources confirm that Wist Hall and Castle Memorial Hall are the only structures listed on the State Historic Register. There are no other known significant historical or archaeological resources. A basic assumption was that these resources would be retained and enhanced in the Master Plan. While there are other buildings on the site that are older than 50 years they are in poor condition and not considered to be significant. SHPD has informed the University that Wist Hall and Castle Memorial Hall are the only structures of concern to the Division.
SECTION 5.0
PROGRAM REQUIREMENTS & EXISTING CONDITIONS

5.1 SUMMARY OF EDUCATIONAL PROGRAM REQUIREMENTS

The College of Education is composed of three major components or programs. The Master Plan accommodates the growth and development of all three programs. They are: 1, College-Level Degree Programs in Education, 2, Curriculum Research and Development Group (CRDG) and 3, the Laboratory School.

5.1.1 College-level Degree Programs in Education

The College has nine academic departments. These academic departments provide instruction for degree credit leading to the following educational objectives:

- Bachelor's degrees in elementary education, recreation leadership, and secondary education;
- Professional Diplomas (P.D.) in elementary and secondary education;
- Master's degrees in counseling & guidance, educational administration, educational communications and technology, educational foundations, educational psychology, elementary education, secondary education, and special education;
- Doctor's degrees in education (Ed. D.) and educational psychology (Ph.D.);

Most of the College level educational programs space are accommodated in Wist Hall and Wist Hall Addition. Both facilities are currently undergoing major renovations.

5.1.2 Curriculum Research and Development Group

The CRDG conducts research into school subject areas such as science, mathematics, marine studies, English language and literature, art, drama, music, and Hawaiian studies. It also conducts research into educational topics of concern, such as gifted children, at-risk children and youth, immigrants and the culturally different, educational improvements and strategies, teacher in-service education, curriculum design, educational evaluation, and curriculum development in multinational settings.

The CRDG designs, develops, and evaluates new curricula and instructional materials and publishes them for the schools, in Hawai’i and on the mainland. In-service training and assistance is provided to teachers and schools as long as the curriculum is used in the schools. CRDG program spaces are dispersed throughout the COE site.
5.1.3 University Laboratory School

The University Laboratory School is the research and development laboratory for the CRDG staff. The school does not have its own separate instructional staff; the researchers and developers of CRDG use the school as their laboratory for exploring possible approaches to various subjects; conducting and evaluating early trials; evaluating, refining, and demonstrating completed curricula; and developing and demonstrating better models for organizing and conducting schooling. This laboratory for educational researchers, like laboratories for other academic and professional fields, must be closely accessible, under the control of the researchers, and integral to the University community. Regular public schools cannot provide these conditions.

The Lab School program has approximately 325 to 350 students with an elementary division for kindergarten through grade five and a high school for grades six through twelve. Students enter the school at grade openings in kindergarten, grade 6, and grade 9. The students admitted are selected to represent the diverse mix of backgrounds of children throughout Hawai‘i. There is equal sex distribution among the students, as well as ethnic distribution, socio-economic family backgrounds, student needs, and learning levels.

5.2 SITE CHARACTERISTICS

5.2.1 Location and Description

The College of Education Campus occupies 15.43 acres of land. The property (Tax Map Key 2-8-15:1) shown in Figure 4 depicts the general topography and existing buildings on the COE campus. Elevations range from approximately 40 feet above mean sea level (msl) near Dole Street, to approximately 80 feet above msl at the corner of University Avenue and Metcalf Street. The COE campus has buildings ranging in age from five to more than 50 years old. Two of the oldest buildings, Castle Memorial Hall and Wist Hall, are listed in the State Register of Historic Places. The open spaces between structures are landscaped with large banyan, monkeypod, kiawe, and wiliwili trees. Except for Wist Hall, Wist Addition, Wist Annex, the Multi-purpose Building, and the University High School 3 building which are of masonry and/or concrete construction, the remaining structures on the site are of wood construction built prior to, or during World War II. Several of the older wooden buildings built about the time of World War II are deteriorating structurally, and the spaces therein are functionally inadequate and obsolete. Constructed according to building codes which have been superseded, some of these buildings do not meet current standards and pose safety and health hazards. State owned buildings over fifty years of age should be reviewed by the State Historic Preservation Office before demolition is planned.

Land uses surrounding of the College of Education include university, residential, and commercial uses. The Central Campus area of the Manoa Campus is located across University Avenue from the College of Education. These campus facilities include Sinclair Library (the undergraduate library) and Bachman Hall (the main University administration building). On the mauka side of Metcalf Street from the COE campus, at the intersection of Metcalf Street and University Avenue, is the Atherton YMCA which
includes a Burger King outlet. A Pizza Hut restaurant is located on the makai side of Dole Street, at its intersection with University Avenue. A two-story wooden University college administration building is located about 50 yards down the street from this restaurant. The Hawaii Public Television, KHET, station occupies a building on the makai side of COE campus, near the corner of University Avenue and Dole Street. The station has a large microwave “dish” antenna located behind the building, adjacent to the Multi-purpose Building. One and two-story single-family dwellings fronting Ho'ona'ena Street are immediately adjacent to the COE campus on the Ewa (west) side. Private residences are also located across Metcalf and Dole Streets.

The wide setback and monkeypod trees fronting University Avenue partially shield and separate the COE campus from the activity of this busy street. Low-rise, one and two story school buildings, minimal paving, plentiful green grass, and large, old trees (such as a prominent banyan tree in the center) create a comfortable and human-scaled environment for education. Facility layout is dispersed and lacks sufficient integration. Laboratory School high school activities presently stretch across opposite corners of the COE campus (from the Multi-Purpose Building to the Elementary Building). College-program spaces are concentrated in Wist Hall and Wist Hall Addition, but overflow needs are mixed with Laboratory School spaces in the High School 1 and Elementary School buildings and scattered portable buildings.

5.2.2 Existing Facilities

Laboratory School classrooms and faculty offices are presently located in five buildings: Castle Memorial Hall, High School 1, High School 3, Wist Annex, and the Elementary School Building. The CRDG, which administers the Laboratory School, has its offices and research spaces in Castle Memorial Hall. The College-level education and research functions of the College of Education occupy Wist Hall, Wist Hall Addition, the High School 2 Building, and the four “portable” buildings adjacent to Wist Hall. Appendix B provides a more detailed description of the occupants and functions of each building.

5.2.3 Circulation

Parking and Motor Vehicle Circulation - Automobiles belonging to faculty, research staff, administrators, and visitors to the College are permitted in the COE parking lot when they display proper identification (Figure 5A). Access to the parking lot is from Metcalf Street. Currently there are approximately 100 on-grade parking spaces on the COE campus. A service road originating at the end of the parking lot accesses the central portion of the campus allowing delivery of supplies to the school, trash pickup, and distribution of printed curriculum materials from the Media Production Center. The parking lot is usually full during regular school hours. The College lacks sufficient parking spaces within this lot to accommodate all its administrators, faculty, and research staff.

Most of the upper-level Laboratory School students come by bus or are dropped off or picked up by parents at curbside along Metcalf Street. Children in the Child Care Center and kindergarten through grade 5 are generally dropped off and picked up along Dole Street. Curbside parking and drop-off/pick-up space is limited.
Pedestrian Circulation - Sidewalks and grassy lawns provide for the necessary pedestrian circulation paths within the COE Campus. When crowded with cars, the existing parking lot experiences pedestrian/vehicular conflicts. Pedestrian crossing of Dole Street to get to the Administration building parking area across the street also creates conflicts with vehicular traffic.

5.2.4 Utility Systems

Summarized below are the existing conditions of utilities systems on the COE Campus.

Stormwater Drainage - No off-site stormwater runoff flows onto the COE Campus. Stormwater runoff generated on the Diamond Head side of the COE Campus generally flows on the surface to University Avenue and Dole Street where it is collected by the street gutter and stormwater drainage system. Runoff from the Ewa side also flows by gravity to the boundary wall adjacent to houses fronting Ho'onanea Street and eventually connects to a drop intake which connects to the City's drain on Dole Street. The system's capacity is adequate for the anticipated 39.6 cubic feet per second (cfs) volume which would be generated by a 10-year storm. Debris and leaves which occasionally fill the drop intake at Dole Street need to be removed to prevent clogging and possible localized flooding. No problems with stormwater drainage presently exist.

Water - The Board of Water Supply (BWS) owns and operates two separate water reservoirs in the Manoa area. The BWS high pressure system from an elevation of 405 feet above mean sea level generally serves the central Manoa Campus. The low pressure system, at an elevation of 180 feet, serves the COE Campus and most of the Makai Campus. Based upon the BWS policy of limiting service zones to 100 feet below the reservoir spillway, the dividing line between the two service zones lies along the 80-foot elevation, or just above Metcalf Street. The COE Campus presently experiences low water pressure in most of its buildings due to the inadequate sizing of water lines constructed before 1966.

Sanitary Sewer - The COE Campus is presently served by a network of four-, six-, and eight-inch sewer lines which connect to a 12-inch sewer main running below University Avenue. A network of four- and six-inch lines serve Castle Memorial Hall and the Elementary School in the far Ewa portion of the COE Campus, and empty directly to a 60-inch sewer tunnel below Dole Street. No problems with the COE Campus sewer system presently exist.

Electrical Power - Most of the buildings on the COE Campus are connected to the University's primary electrical system. However, several buildings are serviced directly by HECO. Buildings serviced directly by HECO are the Elementary School, Castle Memorial Hall, and Castle Memorial Annex. The existing system is inadequate to accommodate the new equipment and the expansion and renovation plans of the College of Education. The campus currently suffers from occasional periods of inadequate power.
SECTION 6.0

REVISED MASTER PLAN

Revisions to the Master Plan were guided by five major influences. First, due to changes in program and policy priorities there is now a projected increase in the student and faculty population. Additional office spaces and classrooms are needed to accommodate this increase. Second, the goal of achieving national accreditation requires improvement and expansion of existing facilities and the creation of new facilities. Third, changing technologies and State educational policies require enhancement and upgrades in facilities to achieve excellence and to expand service to outlying Hawaii communities as well as other countries in the Pacific Basin. Fourth, the advanced age of existing facilities has resulted in spaces that do not meet current building codes and are below current classroom or office space standards. The need for replacement or renovation of these spaces is urgent. Finally, there is the desire to create a cohesive atmosphere with architecture and landscape which unifies facilities, function and design features to create an integrated mini-campus within a campus.

The basic architectural concept and character of the College of Education site remains the same. It will be a mini-campus within the broader Manoa Campus. The architectural style will be compatible with Wist Hall Mediterranean kamaaina with compatible modern expressions. There will be continued focus on courtyards, arcades and quadrangles. The overall height and density of the plan remains the same as the Master Plan shown in the University of Hawaii’s Long Range Development Plan (UHLRDP). However, there are some significant differences and some additional constraints and conditions.

6.1 MASTER PLAN CONCEPTS AND MAJOR THEMES

Major Concepts and themes guiding the master plan development includes the following:

1. "Mini-campus" atmosphere and design
2. Greater accessibility to the broader community i.e. non-traditional students, neighbor island communities and Pacific Basin nations.
3. Pedestrian precinct.
4. Mediterranean kamaaina design.
5. Three functional zones (Figure 6):
   a. 18-hour open community outreach facilities. (Predominantly College)
   b. Area of shared facilities.
   c. Safe, children's area. (Predominantly Laboratory School)

6.2 SUPPORTING ELEMENTS AND MINOR THEMES

1. Colors, textures, materials and scale should be compatible with Wist Hall. (Figure 7)
2. Design Concepts: Supporting the concept of a mini-campus, designs should consider the following items: gateways, arcades, plazas, courts, malls, pedestrian pathways and generous landscaping. (Figure 8)

3. Heights, massing, orientation and scale should relate to a pedestrian environment.
   a. Building heights should not exceed three stories.
   b. Building masses should be compatible with Wist Hall and the mass of larger structures shall be broken down into smaller segments to create more intimate spaces.
   c. Outdoor spaces should orient themselves to the courts, malls and arcades. The courts and malls should have multiple functions.
   d. Indoor spaces should relate to the functional clustering of each area. Additionally, they should orient to the outdoor courts and malls as much as possible through orientation or transitional features like lanais or stairway landing areas.

4. Existing Trees and Landscaping should play a major role in the design.
   a. The existing kiawe trees along Metcalf should be respected where possible.
   b. The large banyan tree in the middle of the campus should be a design focus for the interior mall and a landmark on the campus.
   c. Landscaping should be used to enhance the functional and aesthetic values associated with the courts and malls.

6.3 INFRASTRUCTURE

Conceptual utility plans have been designed to support the revised master plan. They are included in Section 9.0. Except for drainage, existing infrastructure is generally inadequate to support the full master plan development.

6.4 RENOVATIONS

The most significant changes from the existing Master Plan involve the designation of Castle Memorial Hall as a historic site and the decision to retain the High School #3 and Multi-Purpose Buildings. (Figure 9) All three buildings will ultimately be renovated to meet current codes and make them more usable for current programs. Two other major changes to the existing UH LRDP are: (1) the movement of the parking structure to the Hoonanea Street end of the site and (2) the addition of the service road towards the center of the COE site. The parking structure was moved to accommodate changes in the site plan that became necessary with the decision to retain the three buildings mentioned above. The service road was added to provide a service access to the middle of the site as well as meeting fire code requirements of access for emergency vehicles.
6.5 ANALYSIS

The revised plan creates courtyards through modifications and extensions of the existing buildings and the siting and design of proposed buildings. Major existing trees will be retained as much as possible. Utilizing Wist Hall as an example and taking inspiration from the Honolulu Academy of Arts a series of interconnected courts will be tied together with walkways and arcades. The central quadrangle, the amphi-theatre overlooking the athletic field and the Banyon Court will be major open spaces in the plan. The space between Wist Hall and Wist Hall Addition will be gated and converted to a courtyard. The portables between Wist Hall and HS-3 will be removed and the space developed into another enclosed courtyard. Statuary or other works of art will provide points of focus in many of the open areas. Elevator towers and multi-level roof forms will create interest and articulation in framing these open areas. The present setback of Wist Hall from University Avenue will be respected in any renovation or new building construction. This broad greenbelt along University Avenue is a major design element of the COE Campus.

In the rationale for the plan, an imaginary line runs through the Phase I building, the Learning Resource Center (LRC) and the renovated HS-3 Building (Figure 6). College facilities, functions and programs will be located in the cluster of buildings related to these two buildings, Wist Hall and Wist Hall addition. CRDG and Laboratory School functions will be concentrated on the facilities makai and Ewa of that line. There will be some mixing at the LRC, the Phase I Building office sections and the renovated HS-3 facility since there is an overlap in faculty and college resources within the functions and staff that will be accommodated in these structures. This plan minimizes the interface between College and Laboratory School students which is desirable for security, social and management purposes.

The College functions are closer to the Central Manoa Campus and acts as a buffer to the Laboratory School. The College facilities are located on the perimeter of the site readily accessible to public streets and key intersection at Metcalf Street and University Avenue. This is better for traffic safety and also accommodates the changes to the student population of the College of Education which includes more non-traditional students. There has been an increase in non-traditional students who use the facilities in the late afternoon/evening hours after work or on weekends. Sites along the perimeter of the COE mini-campus are safer and more convenient for these students, especially at night and facilitates security for the interior Laboratory School facilities. The location of the Learning Resource Center at the upper part of the site gives it a prominent gateway location to the main quadrangle. It will be the new signature building for the site.

The location of the parking structure on the Ewa corner of the site has several advantages. As a utilitarian structure, it is in a less visible location and because the site is not large, it is still within easy walking distance of all facilities. Its placement relates to the phasing of development which will be discussed later. Its location next to the future gymnasium is also convenient since this facility is likely to attract evening and weekend use attended by outside parties. This location also allows the service road to remain at the rear perimeter of the site to minimize vehicular intrusion into the interior of the campus.
A student drop-off system is planned along Metcalf Street with a long storage area to alleviate some of the congestion problems associated with before and after school traffic. A traffic assessment indicates that Metcalf is the safest street for this purpose. The drop-off area will front the new Phase I facilities for the Laboratory School. Implementation of this item will require coordination with the City's Department of Transportation Services to move bus stop locations and widen Metcalf Street, a City Street.

6.6 REVISED MASTER PLAN

The existing Master Plan and general design guidelines for the COE are found in the UHLRDP. (Appendix C) Revisions included in this report will require an amendment to the UHLRDP. The Master Plan will be implemented in phases as funds become available.

6.6.1 Wist Hall and Wist Addition

Wist Hall has been placed on the State Historic Register. Wist Hall and Wist Addition are being renovated. Located at the corner of the COE site at the intersection of Metcalf and University Avenue, the buildings are located at the point of closest interaction with the rest of the Manoa Campus. Their uses will remain completely within the college portions of the College of Education. The office of the Dean and other administrative functions will remain in these buildings. The space allocation after renovation is included as Appendix D.

The architectural character and scale of Wist Hall will be the model for the COE campus. The portables between Wist Hall and Wist Addition will be removed and the area landscaped and enclosed to create a distinctive inner court.

6.6.2 Indoor/Outdoor Integration

Outdoor and indoor spaces will be integrated by design. The amphitheater area, the stairway landing to the court that faces the Central quadrangle and the Banyan Court are all designed with this intent and will allow for multiple purposes. Pep rallies and large gatherings can be held at the amphitheater and the central court. The architecture of the buildings will be integrated with the character and orientation of the courts so that stairway landing areas may be used as stages and natural slopes may be used as viewing areas for assemblies. The kiawe trees and landscaped lawn area fronting Metcalf Street will be retained as much as possible within the scope of that Master Plan. This area will serve as the official street entrance to the Laboratory School and the yard will be consistent with the "Mini-Campus" Plan. The student drop-off point will be located here and the walkway will be broadened. The design of buildings and grounds should create a formal sense of entry. Smaller open spaces will be converted to courtyards and malls as shown in this plan to allow multiple indoor/outdoor uses of these areas. Lanais, balconies, gateways, arches, trellises and arcades will aid in this integration.

6.6.3 Phase I Facilities

The Phase I facilities will be used primarily by the Lab School and CRDG. Classrooms will be located on the first and second floors with offices and work areas located in an
office tower at the southern end of the building. The courtyard facing the central quadrangle connects internally through this building to the amphitheatre and the athletic field. Figures 10 and 11 provide floor plan concepts for Phase I.

6.6.4 Learning Resource Center

The Learning Resource Center will be connected to the Lab School facilities but will have a functional integrity of its own. Located across the future mall from the High School III building, this facility will be a prominent part of the new College of Education complex. Planned as a high-tech resource center, the architecture should be distinctive; compatible with the Mediterranean kamaaina influences, but also reflective of the future in its envisioned purpose as an innovative center leading educational instruction in the Pacific Basin.

6.6.5 Future Phases

The remainder of the revised Master Plan will be implemented in future phases as funds allow. The Plan is designed to allow development of future phases with a minimum of disruption to existing operations. The breakdown of subsequent phases will be based on a combination of available funding and program priorities. The phasing will be described in more detail in Section 8. The following elements are part of the future phases.

6.6.6 Central Quadrangle

The site of the existing parking lot will be the central quadrangle for the COE campus. Like a piazza, this quadrangle will be a key integrating element of the campus. Statuary and appropriate landscape will enhance the quadrangle. People from the different functional groupings within the college will traverse through the quadrangle. Arcades, malls and pathways will lead people to and through this space. These arcades and paths will connect the Phase I facilities with the existing and renovated facilities along University Avenue. This quadrangle will be planned to allow multiple outdoor functions. Landscaping, outdoor furniture and microclimates will be created to encourage social interaction.

6.6.7 High School - 3 (HS-3) and Multi-Purpose Building

The decision to retain and renovate the High School 3 Building, Multi-purpose Building and Castle Memorial Hall has shaped the design of the Master Plan. With that decision, master plan extensions and renovation of the HS-3 and Multi-purpose Buildings will create a series of interconnected courts in the spaces between Wist Hall, HS-3; and the Multi-purpose building. The renovated High School-3 Building can be used for either COE, CRDG or Laboratory School functions, but will be planned for use predominantly by the College and CRDG to maintain the integrity of the functional zones. The master plan extensions include drama/auditorium and Music Facility additions to the Multi-purpose Building. This addition will respect the setback from the university that is established by Wist Hall. The HS-3 extension will include office and classroom spaces.
6.6.8 Castle Memorial Hall and Annex

Castle Memorial Hall has been listed in the State Register of Historic Places. The Hall will continue to house the Laboratory School’s elementary divisions. The administrative offices of CRDG and the Laboratory School that are currently located in the office spaces in Castle Memorial Hall will move into new quarters in the Phase I Building. The Hall will be renovated to meet current codes and academic space standards as much as possible. The ultimate fate of the University Pre-school which currently operates from a portion of the building is still in question. Ideally, the Preschool should move out of Castle Memorial Hall and into the facility across the street as designated in the UHLRDP. This move will reduce some of the pedestrian/vehicular conflict that currently exists on Dole Street. Castle Memorial Annex will remain and continue to be used for publications and printing. Enhanced landscaping around Castle Memorial Hall will improve and enhance the courtyard and enclosed garden spaces to make it consistent with the master plan concepts.

6.6.9 Outdoor Fields

The open area mauka of Castle Memorial Hall will remain open and be reserved for athletics and assemblies. This open area will merge into the Banyan Court which will be predominantly a cool and quiet outdoor sitting area. Two basketball courts and a softball field will be developed in the open area. The slopes surrounding these open areas should be utilized to serve as sitting and viewing areas for the functions that would take place.

6.6.10 Physical Education and Arts Facilities

These facilities will be built in future phases. The gymnasium is sited in proximity to the playing fields and the parking structures for convenience and access. The parking structure will be used to accommodate visiting spectators to gym events which will be predominantly held during evening hours.

6.6.11 Parking Structure/Service Road

The parking structure is located on the Ewa/mauka corner of the site. Access will be from Metcalf Street at grade to the second floor of the structure. Existing grades allow an economical two tier structure.

The new Service Road will enter the campus from the Ewa side; run parallel to the property line and then turn into the central part of the COE campus to terminate at the multipurpose building. Designs will accommodate fire and other emergency service vehicles.

6.6.12 Hawaii Public Television (HPT)

There have been discussions of the possible future transfer of the HPT building to the University. If this occurs; the College of Education is the logical recipient of the facility. However, due to the preliminary nature of these discussions, this site was not included in the Master Plan efforts.
Table 1 presents a summary of the architectural program listed by subject areas/grade levels in the College and its allied units which have been used for formulation of the COE Master Plan and Phase I pre-schematic design. A complete architectural program listing of rooms and spaces, proposed floor areas, and detailed descriptions by room or space name are included in Volume II of this report. The architectural program for the recent Wist Hall renovation by Paul Louie and Associates is attached as Appendix D.

7.1 SPACE REQUIREMENTS

All existing CRDG and Lab School functions and enrollments are accommodated in the room lists. The Lab School’s pre-school program, now temporarily suspended to make room for the UH Child Care Center, is also included in the room list.

Concepts were developed for the rooms and spaces for college-level instruction. Space needs for a proposed new Learning Resource Center were given a high priority. An existing resource/curriculum center of limited size is presently housed in Wist Hall. However, the Center is planned for expansion in the College’s program. By giving this function more space and adding computers, audio/visual, and television studio capabilities, this center will become the primary means for providing outreach programs to the Neighbor Island teacher education program. It will also provide modern technologies for improved education of undergraduate and graduate students enrolled in the College. Secondarily, this Learning Resource Center will also serve upper level Lab School students with resources for research projects. Eight classrooms to accommodate increased College enrollment and spaces for researchers presently housed in the portable buildings will be housed in new or renovated facilities. Offices for a research program, the Center for Disability Studies, were recently transferred to the COE’s administration. This organization’s space requirements are included in the program, as well as spaces for a vocational education program. Not included in this program are office requirements for the academic departments of the College and administrative functions under the Dean’s office since these are adequately served at present by Wist Hall and the Wist Hall Addition.

The architectural program delineates the desired floor areas to also assist in phasing and final relocation. The complete program is attached as Appendix E.

7.2 SPACE STANDARDS

Detailed Room layouts and descriptions are found in Volume II. Classrooms are generally sized at 1,000 assignable square feet to accommodate 28 to 30 students, an average class size for Lab School classes. The Lab School is different from other schools in that groups of educators frequently sit in to observe classes. Visitors should be able to view the classes with minimum disturbance by either sitting in the back of room, or by viewing instruction through a window in the corridor wall. Although, the DOE general
classroom standard is 900 to 918 sf for kindergarten through high school, the allocation of 1,000 sf is desirable to accommodate ten to fifteen visitors while class is in session.

Science classrooms require twice as much space as other classrooms because of the need for laboratory benches for experiments, and greater storage requirements for equipment. Approximately 2,000 square feet is a reasonable standard for this special type of classroom. This amount is comparable to standards set by the State Department of Education. Other special purpose large classrooms include the Wood Shop, Chorus, Band, and Orchestra classrooms.

Faculty offices are listed in the program as approximately 150 square feet in size, and graduate assistants' office spaces between 60 to 80 square feet. These allocations conform to standards applied throughout all academic departments of the University. A list of University space standards is presented in Table 3. Where the requested space allocation by the College of Education or its units exceeds the University standard, the University standard will govern in the final design of buildings unless an exception is given.

The cafeteria dining hall will be designed to accommodate approximately 120 students at a time. A kitchen will be adjacent to the dining hall. The dining hall may also be used as a multi-purpose room, such as after-school study.

Present facilities do not provide adequate storage space for any program, especially for unused textbooks, and other supplies which do not need ready access. The space program addresses this deficiency.

A future auditorium will be designed to accommodate 500 people, the number who typically attend Laboratory School performances. Parking for the attending audience is also needed and will be accommodated by the new parking facility.

7.3 ENVIRONMENTAL CONSIDERATIONS

The 1987 UHLRDP defines general environmental considerations for the COE Campus. (See Appendix C) Design criteria set down in this document have established that the site will be organized around a quadrangle, and buildings linked by arcades. It also established that parking in the center of the site will be discontinued and a parking structure be developed along the mauka boundary.

Noise, temperature, and air circulation are very important considerations for classroom environments. Outside distractions need to be avoided. External noise, from traffic sounds and the clanging of students' lockers, are very distracting and should be alleviated through building orientation, the proper choice of floor and ceiling materials, and the location of lockers in a separate space away from the corridors near classrooms. Carpeting is recommended as a sound dampening material. Most Laboratory School staff and faculty prefer natural ventilation over air conditioning, if outside noise, dust, and air pollutants can be effectively controlled. If possible, operable windows should be included to allow a choice between A/C and natural ventilation. Orientation of rooms and spaces will be directed away from busy streets. Mitigation through appropriate building design, landscaping, and other means will be considered in the design.
## UNIVERSITY OF HAWAII SPACE STANDARDS

<table>
<thead>
<tr>
<th>POSITION</th>
<th>RANGE (SQ. FT.)</th>
<th>FACTOR APPLIED (SQ. FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office - Dean or Director</td>
<td>220 - 260</td>
<td>250</td>
</tr>
<tr>
<td>Office - Associate Director</td>
<td></td>
<td>200</td>
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<tr>
<td>Office - Chairperson</td>
<td>180-200</td>
<td>200</td>
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<tr>
<td>Office - Assistant Chairperson</td>
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<td>180</td>
</tr>
<tr>
<td>Office - Faculty</td>
<td>120-150</td>
<td>150</td>
</tr>
<tr>
<td>Office - Graduate Assistant</td>
<td>60-80</td>
<td>80 (single or double)</td>
</tr>
<tr>
<td>Office - Administrative, Professional, and</td>
<td></td>
<td>60 (three or more)</td>
</tr>
<tr>
<td>Technical (APT)</td>
<td>100 - 140</td>
<td>110 (fiscal)</td>
</tr>
<tr>
<td>Office - Clerical</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Office - Student Help</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Conference Room</td>
<td>15 - 25/station</td>
<td>15/station</td>
</tr>
<tr>
<td>Office Service</td>
<td>100-150</td>
<td>Varies with Department</td>
</tr>
</tbody>
</table>

**SOURCE:** University of Hawai'i Facilities Planning and Management Office
Lockers for the Lab School shall be split into three sets of approximately 125 each and enclosed within an acoustically controlled area. The noise of students opening and closing lockers located along corridors is easily transmitted through buildings—disrupting classes and faculty work.

7.4 SPECIAL ROOM/SPACE CRITERIA

The security needs of the Laboratory School will be considered in design. The design of classrooms should be flexible to allow separation and closure of computer and project storage spaces from the seating area to permit the continued general purpose uses of classrooms. K-12 classrooms (and especially K-6 classrooms) need more personal spaces than typical college classrooms. Also, the flexibility to re-configure spaces (through the use of non-bearing walls) is desirable, if possible. Additional conduits will be planned for all spaces to accommodate future electrical and telecommunication requirements.

The circulation and interaction of children at the different grade levels need to be considered in design. Children of different age groups need to be separated for some activities, such as lunch, and allowed to mix in other circumstances. This "kid friction" should be reduced during less supervised periods of social activity, such as lunch, recess, or special events on school grounds.

The gymnasium will be designed primarily for a regulation basketball practice court (including volleyball) and not for spectator viewing. Lockers, showers, and offices will be provided in the Physical Education complex.
SECTION 8.0

PHASING PLAN

8.1 PHASE I & IIA

Figures 10 and 11 present the Master Plan for the College of Education from Phase I to ultimate build-out. Floor plans for Phase I are shown in Appendix F. Table 1 summarizes the assignable floor areas of spaces provided in Phase I as well as Phases II and III of the Master Plan. The High School-2 Building and Wist Annex must be demolished to make room for the classroom and offices. Phase I facilities shown in the Master Plan accommodate all of the programmatic spaces shown in Table 2.

The Elementary School Building and portable buildings, as needed, will be used to temporarily replace classrooms and research spaces lost in the demolition of the High School 1 and 2 Buildings and the Wist Annex. After the Phase I facilities are completed, the functions temporarily housed in the Elementary School can move out, and a wing of the school no longer in use may be demolished to create a site for surface parking.

8.2 PHASE II & IIA

Depending upon funding, the surface parking lot and a connection for a service road may be included either after completion of Phase I, or prior to initiation of Phase II. Thus, the surface parking is termed Phase IIA. Completion of the surface parking area will permit removal of the existing parking lot and its replacement by a landscaped quadrangle with walkways.

The University has the option of approximately doubling the number of parking spaces by erecting a parking deck structure above the surface parking area. Integrated with the access road to the surface parking area or parking structure will be a service road of minimal width to accommodate emergency vehicles, trash collection, as well as delivery of paper and distribution of curriculum materials from the Media Production Center in Castle Memorial Annex. This new parking area is not included under the Phase I.

Phase II will include the renovation and expansion of HS-3 and the Multi-purpose Building. The Cafeteria and Auditorium/Drama functions will be accommodated in a renovated and expanded Multi-purpose Building.

A renovated and expanded High School 3 Building will contain the additional College classrooms and research office functions. The building addition will complete the enclosure of the existing semi-enclosed courtyard space. This building will also be linked through a two-story arcade to the facilities constructed in Phase I. This feature helps satisfy present fire exit standards and handicapped access requirements in which the High School 3 Building will be deficient.
8.3 PHASE III

The Arts and Physical Education facilities are located Ewa of the Phase I facilities and adjacent to the parking structure. It is recommended that these facilities be developed after the renovation and additions to the High School 3 and Multi-purpose Buildings to allow an easier transition of moves for the existing programmatic uses of these buildings. Another courtyard space, dominated by a large, existing banyan tree, would be created by this juxtaposition of structures, and would extend the pattern of spatial interplay.

Limited renovation of Castle Memorial Hall is necessary eventually to meet building code and accessibility standards. The schedule for this renovation has not yet been determined. It may be undertaken at any time without adversely affecting other phases of Master Plan implementation.

No move is planned for the Media Production Center in the COE Master Plan. It is a fairly new building and will remain in its present location in the Long Range Plans for the College of Education. The building will remain accessible to delivery vans for pickup of curriculum materials and to receive paper and other supplies on a regular basis. The existing service road from the parking lot will be replaced with a new service road integrated with the access road to the future parking structure at some time after Phase I.
SECTION 9.0
UTILITY AND INFRASTRUCTURE

The University of Hawaii has completed Utility Master Plans for all major systems. However, these plans did not provide lines and connections within the COE site. Also, no assessment was made of the impact of the revised COE Master Plan layout. Mini-master plans for each utility system were developed.

9.1 DRAINAGE

The 1990 Utilities Master Plan (UMP) Update by Fukunaga and Associates states that drainage facilities for the College of Education/Lab School area was adequate under existing and planned (1987) UHLRDP Plans. Subsequent to this, Engineering Concepts completed a conceptual utility plan which reflects the current Master Plan Update. (See Figure 12 and 13).

9.2 WATER

The 1990 UMP identified some problems in the water service for the site. It states: The Teachers College/Lab School area is presently served by the BWS "low pressure" system. About half of the existing buildings have interior fire protection systems. The other structures do not have interior fire protection systems, and some buildings are located far from existing fire hydrants. Water mains and fire hydrants within the school grounds will be provided and will be planned to provide service to facilities as they are sited in the revised Master Plan for the College of Education.

Completion of the BWS Waahila reservoirs, presently under construction, will greatly enhance the BWS ability to adequately deliver water to the UH Manoa campus. However, because of the relatively high ground elevations in the College of Education area fire flows in that area, may not meet the 2000 gpm requirement at all times, but are expected to be close to the required 2000 gpm. Static and residual water pressures will also remain relatively low in areas adjacent to Metcalf Street. If higher individual building service pressures are desired, a connection to the 6" high pressure line along University could be considered.

Engineering Concepts, Inc. developed a conceptual water master plan for the COE site. (Figure 12 and 13.) Two options have been proposed for the high pressure line connection. One is a line connecting the site from University Avenue near the School of Architecture site, along Metcalf Street and on to the COE. This line connects to the BWS 405 Reservoir. The other option is to connect to an existing 12" high pressure line across University Avenue. Although funding and phasing questions remain, preliminary indications are that the line from the 405 reservoir is the preferred alternative for the ultimate Master Plan.
9.3 SEWERAGE

The 1980 Utilities Master Plan (UMP) indicated few problem areas. However, the 1990 update made the following comment.

"The 1987 LRDP shows extensive modifications to the Teachers College/Lab School. Existing sewers may have to be abandoned, and new sewers will need to be constructed. Proposed buildings immediately adjacent to University Avenue could connect to sewers along University Avenue. Facilities near the middle of the site could connect into a future main sewer located near the center of the site which would eventually connect to Dole Street. The location of the sewer would depend on when affected future buildings were designed and the building configurations."

In 1992, Engineering Concepts, Inc. developed the sewer plans shown in Figure 12 and 13.

9.4 ELECTRICAL

The University of Hawaii is experiencing problems of inadequate power on the Manoa Campus. The present system is approaching maximum capacity. With new buildings, modern equipment and changing technologies, it is anticipated that future demand will be significantly greater. As a response, a new electrical substation is planned in the makai campus. Ron Ho & Associates completed an Electrical Distribution Study and Master Plan for the University in 1991. Toft Moss Farrow developed a plan to make the necessary connections to the College of Education Site (Figure 14).

9.5 MECHANICAL SYSTEMS AND AIR CONDITIONING

The issue of air conditioning versus natural ventilation was discussed frequently in the development of the Master Plan. The advantages of air conditioning were: climate control, noise reduction, and conducive learning environments. The negative concerns were additional costs and space requirements for equipment, and operating expenses and uncertainty about health impacts. Natural ventilation is cheaper and allows enjoyment of Manoa's generally equable climate. The negatives were uncomfortableness during warm weather, external noise, dust and lack of climate control for records, references and equipment. The decision for Phase I was to go with air conditioning. The general recommendation is to proceed with a central plant which may be installed and expanded incrementally. Discussions on location and capacity are included in Volume II.

Plumbing and fire protection requirements were evaluated for the three additional buildings that will be retained: High School - 3, Multi-Purpose Building and Castle Memorial Hall. The assessments are included in Volume II.
SECTION 10.0
COST ESTIMATES FOR PHASE I FACILITIES

For budgetting purposes, a rough cost estimate has been prepared based upon assumed values per gross square feet of building floor area constructed. According to the State Department of Accounting and General Services, the 1991 construction cost for buildings comparable to the College of Education Phase I project averaged about $225 per square foot. Since that time, construction costs have declined somewhat as the construction market has descended from a cyclical peak to approximately 80 percent of that value. The gross floor area of Phase I is approximately 58,155 square feet. It is estimated, therefore, that the cost will be approximately $16 million (1993 dollars). Total estimated cost for Development of Phase I is shown in Table 4.

The University has developed utility master plans for the university wide systems. There are phasing considerations that must be coordinated with the development of these overall systems to adequately serve the Phase I facilities.

The cost for a new parking area is not included in the figure above. A separate estimate pegs this cost at approximately $1.73 million (1992 dollars) including the cost of demolition and reconstruction of a wing of the Elementary School Building, construction of a surface parking area as shown on the Master Plan (Figure 10), and a new service road from Metcalf Street to the termination of the existing service road at the basketball practice courts. Also, necessary electrical work, such as parking area lighting, is included in the costs estimates. Notes on the Details of cost estimates are included in Volume II.
# TABLE 4

## COST ESTIMATES

### PHASE I (nearest 1,000)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building 58,155 s.f. X $200/s.f.</td>
<td>11,631,000</td>
</tr>
<tr>
<td>Landscaping</td>
<td>316,000</td>
</tr>
<tr>
<td>Civil Site Work</td>
<td>669,000</td>
</tr>
<tr>
<td>Electrical Site Work</td>
<td>253,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>12,584,600</strong></td>
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</tbody>
</table>

### OTHER PHASES (Miscellaneous):

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tr>
<td>Parking Lot Service Road</td>
<td>1,748,000</td>
</tr>
<tr>
<td>Future Civil Sitework</td>
<td>790,000</td>
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<tr>
<td>Future Electrical</td>
<td>794,000</td>
</tr>
<tr>
<td>Phase II and III Landscaping</td>
<td>725,000</td>
</tr>
<tr>
<td>Castle Memorial Hall Renovation (Structural)</td>
<td>250,000</td>
</tr>
</tbody>
</table>