florida international university

the birth of a university...
and
plans for its development

technical appendix

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INTRODUCTION

The Appendix provides the specialist reader with supporting data and analysis for the technical conclusions and recommendations incorporated in Part Three (The Tamiami Campus Plan) of The Birth of a University...and Plans for its Development .

These recommendatians are based upon the best information currently availoble concerning projected enrollment, space needs, etc., and on the state-of-the-art pertaining to the various systems and technologies. As the growth of the University proceeds, it is to be expected that some of these may change, and that the recommendations will be subject to re-examination and modification as appropriate.

TABLE OF CONTENTS

PART ONE
utilities systems

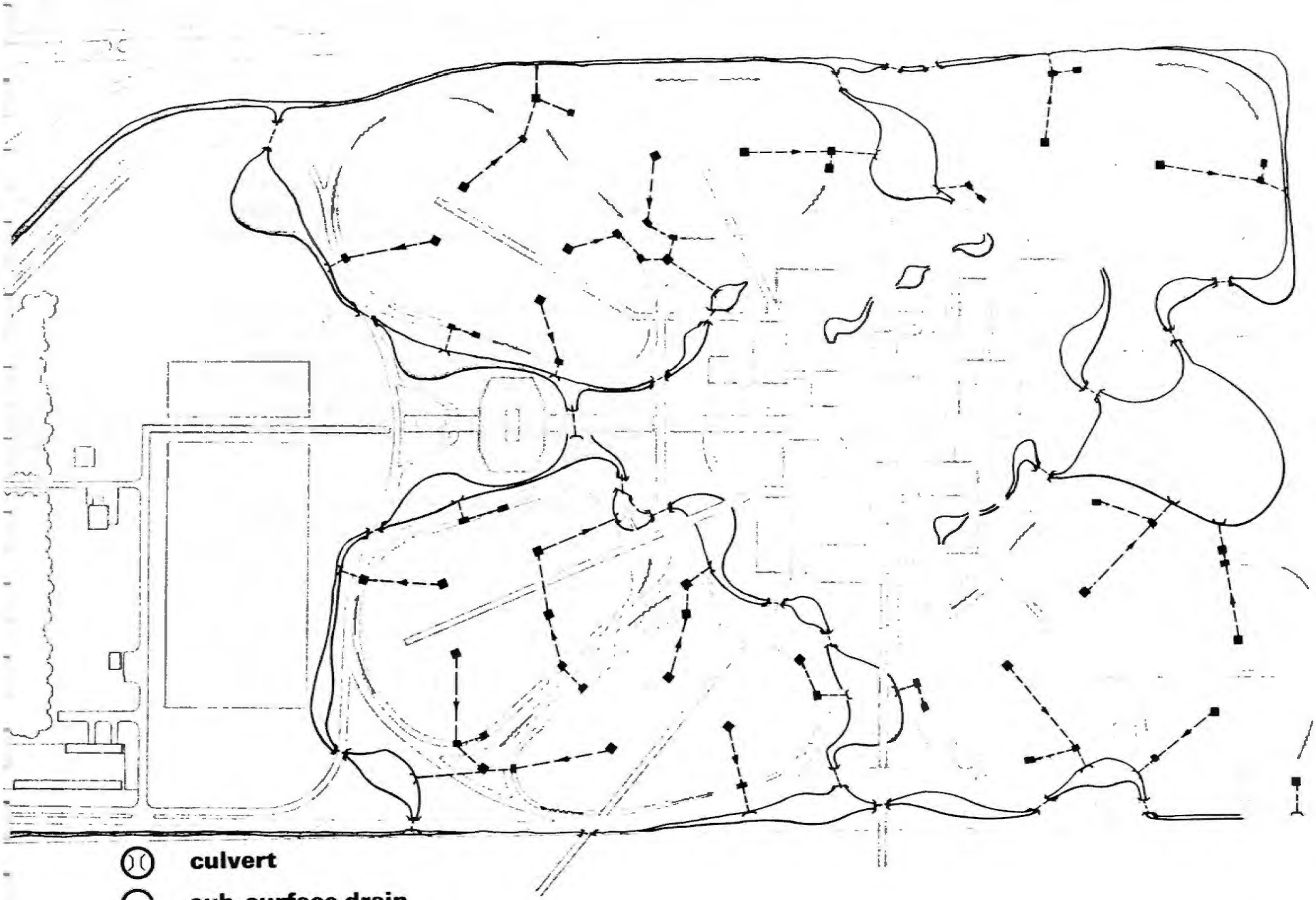
SITE DRAINAGE

A combination of surface and subsurface drainage will be used throughout the campus. Finished grades will be established to divert overland flow into inlets, swales and canals, and from there into the system of lakes on the campus. The lakes, an integral part of the drainage system, will be interconnected to discharge into the existing Snapper Creek Canal adjacent to 117th Avenue. The drainage system is shown on the accompanying map.

The campus drainage system will be designed to discharge the runoff created by a five-year storm in all areas except the parking lots, which will be designed for a one-year storm intensity. The hydraulic gradient controlling the design will be the five-year storm elevation in the receiving canal. The Dade County Water Control Department has made hydrology studies of the canal system in the vicinity of the campus site. The following are the results of those calculations showing the canal elevations.

Canal Location	5-Year Storm	10-Year Storm
Tamiami Canal and Snapper Creek	6.4	6.7
Tamiami Canal and S.W. 97th Avenue	5.5	5.8
Coral Way and S.W. 97th Avenue	5.9	6.2
Coral Way and Snapper Creek	6.2	6.5
1/2 Mile N. of Coral Way on Snapper Creek	6.3	6.6

Low Water Elevation for Area 2.30



site drainage

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DOMESTIC WATER AND FIRE PROTECTION

The domestic water system will be designed to provide for water needs of all buildings and supply sufficient quantity of water and pressure to serve fire protection requirements both for the fire riser in each structure and a fire hydrant system. The system will be of a looped design connecting to the existing 12-inch main in 107th Avenue and a future main in the Tamiami Trail. It will basically follow the internal road system so the fire hydrants can be located for proper access to mobile fire protection equipment. Service lines for the various structures will be run from the distribution main. Portions of the ultimate system will be constructed with each phase of the building program in such a manner that the elements being constructed will have adequate service and fire protection. The staged construction of the system will be so designed that it will become an integral part of the final system. Since the water system involves only distribution and service piping, this method of staged construction will not materially increase the cost of the overall project. The water system plan is shown on the accompanying map.

Separate metering for groups of buildings is recommended because it eliminates master meter restrictions in the fire lines serving the campus, and by metering only the domestic water service to the buildings, no water for fire protection will be charged to the University. Also, it is recommended that the distribution mains be dedicated to the supplying utility, which will assume the operational and maintenance responsibilities for those mains.

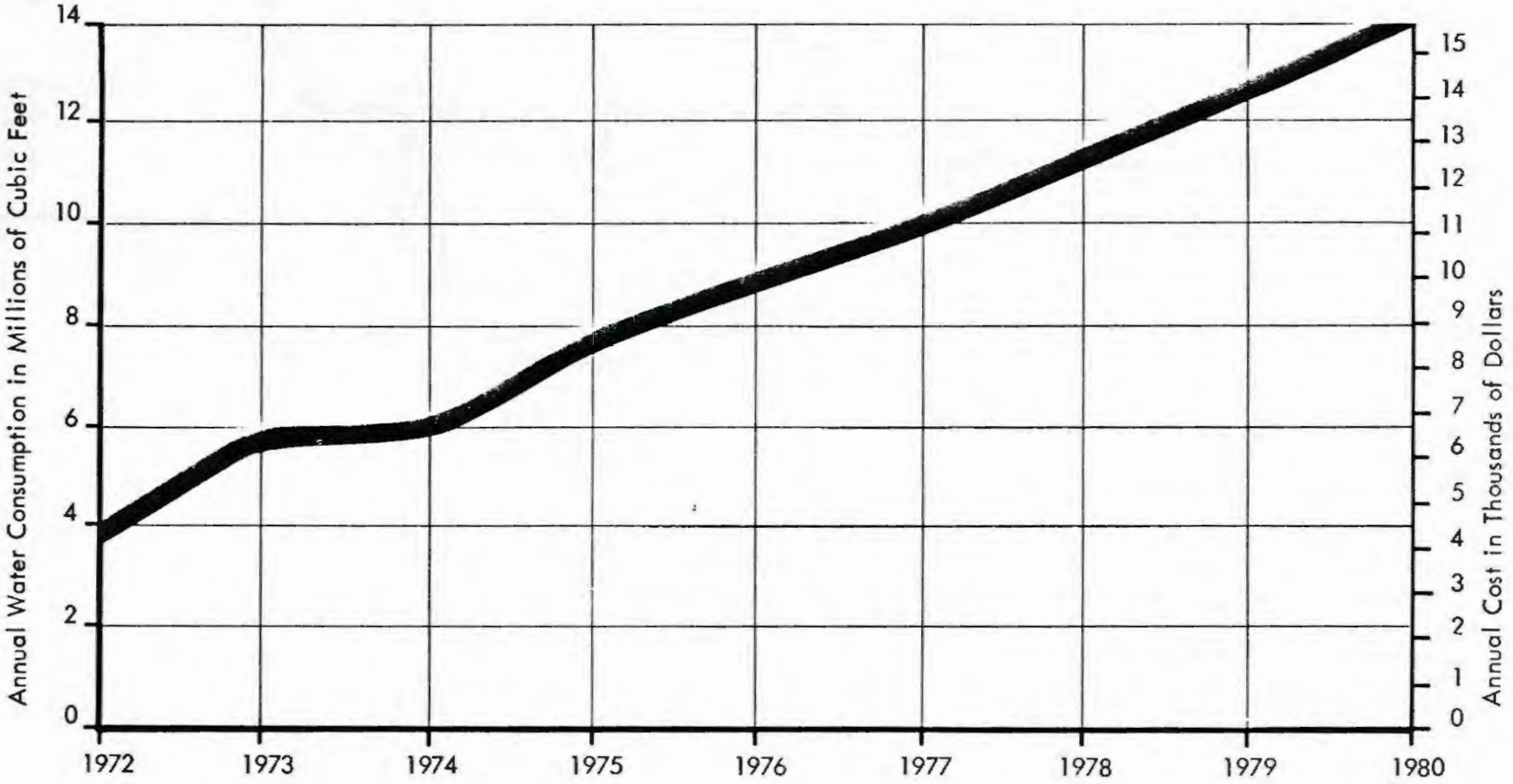
Water required for lawn sprinkling will be pumped from the campus lakes or shallow wells. Water produced from these sources will be cheaper than if purchased from the domestic system. Such water can be circulated through the ponds to maintain the desired water levels and to prevent stagnation.

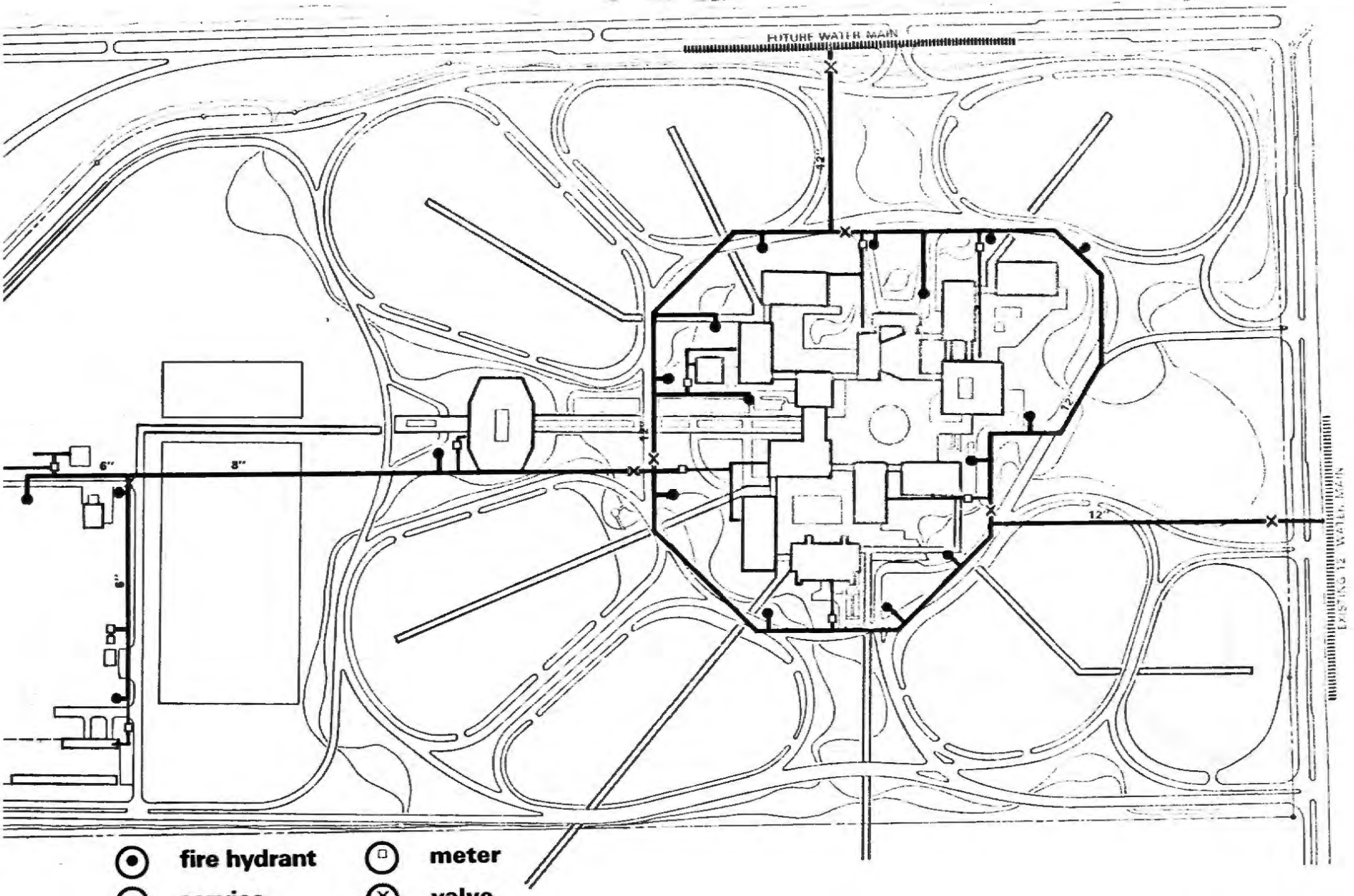
The sizing of the distribution system is governed by fire demand criteria, which are: Through 1973 - 2000 gpm at 5 lbs. residual pressure; and 1974 through 1980 - 3000 gpm at 5 lbs. residual pressure. This provides more than ample capacity to meet domestic demand. Fire hydrant location will be 6 - 8 feet from the edge of arterial road pavement on the building side of the road. There will be a minimum of two hydrants serving each structure. The building wet riser connection will extend from the building to within 25 feet of the road adjacent to one of the hydrants serving the building.

Projected annual water consumption and charges are given on the following chart, based on the following current charges: (there is also an annual fire hydrant charge of $30.00 per year per hydrant).

Unit Cost for Domestic Water

$1.38 per month including use of	600 cu. ft.
$0.22 per 100 cu.ft. for the next	2,400 cu. ft.
$0.2035 per 100 cu.ft. for the next	9,000 cu. ft.
$0.154 per 100 cu.ft. for the next	18,000 cu. ft.
$0.121 per 100 cu.ft. for the next	30,000 cu. ft.
$0.11 per 100 cu.ft. for all usage in excess of	60,000 cu. ft.





domestic water and fire protection

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SANITARY SEWER SYSTEM

The on-site system will consist of a gravity collection system discharging into a lift station which in turn will deliver the sewage through a force main to a pressure system constructed along 117th Avenue by Metropolitan Dade County.

The system will be constructed in three phases:

- Phase I

The Dade County system will not be completed until September 1972, therefore, temporary facilities for on-site sewage disposal will be required for staff occupancy during 1971.

- Phase II

Due to budgetary limitations, an interim lift station with necessary force main of sufficient capacity to meet the 1973 requirements will be installed adjacent to the initial buildings. When the permanent station and force main are installed in Phase III, the equipment in the interim station can be salvaged and reinstalled in a station located at the western partion of the site to provide service for maintenance structure and future facilities. At that time, the flow in the interim force main can be reversed into the permanent lift station. The interim phase is shown on the accompanying map.

- Phase III

The permanent lift station and force main should be constructed with the 1973 building program. Because of the variable hydraulic conditions in the Dade County pressure system and the changing capacity requirements of the campus growth, the permanent station should be a wet well-dry well type with variable speed pumping units and an auxiliary standby engine for emergency operation during power failures. The 1980 phase is shown on the accompanying map.

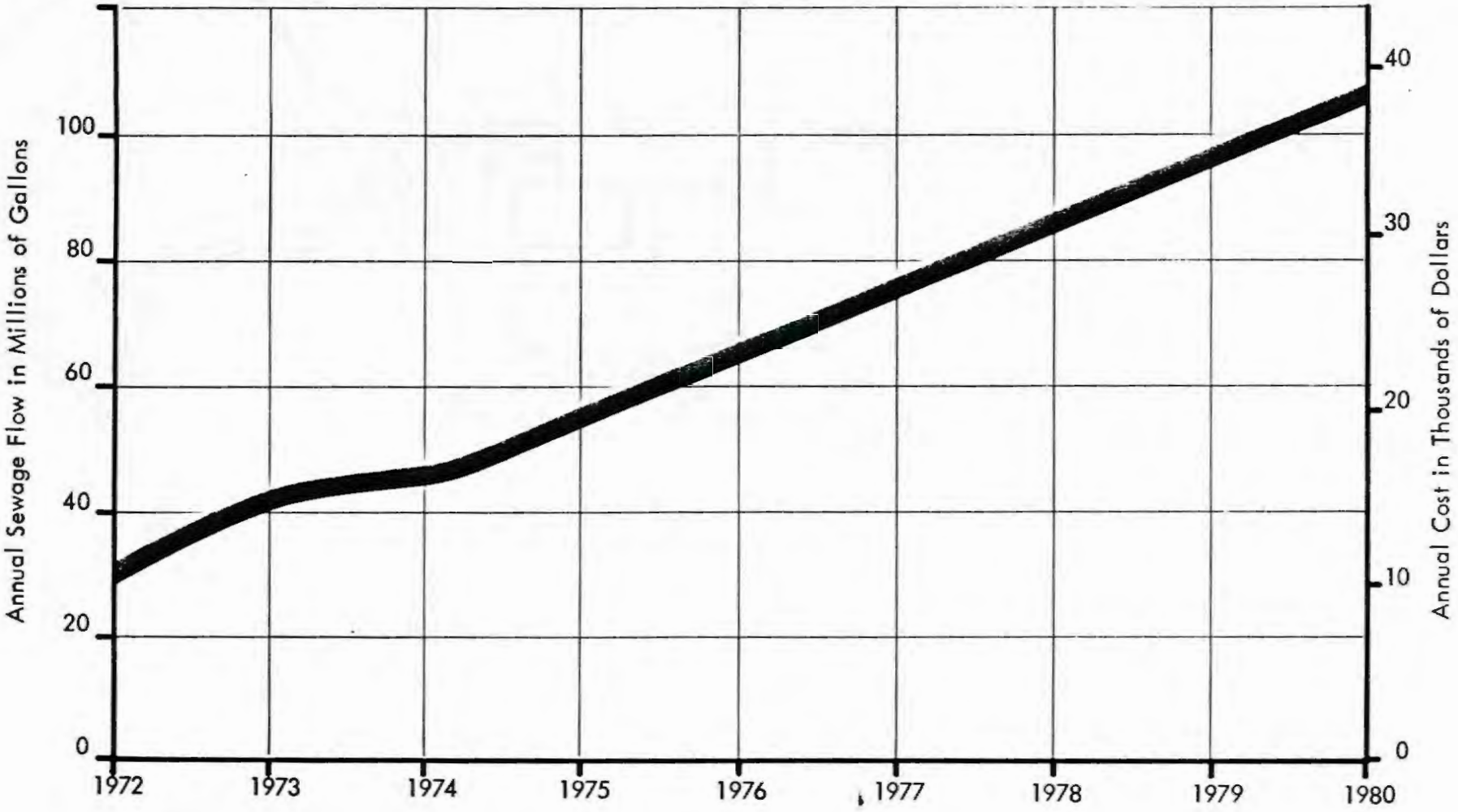
It is the policy of the Dade County Public Works Department to assume the operation and maintenance of all systems discharging into their facilities. For this reason, they establish certain functional design guidelines. The ultimate system will be designed to comply with the requirements of Dade County Public Works Department and shall have sufficient capacity to meet the peak flow demands for the 1980 projected compus population. The criteria used for average design flow were: Through 1973 - 25 gallons per capita per day; and 1974 through 1980- 20 gallons per capita per day. The peak flow was projected as four times the average design flow.

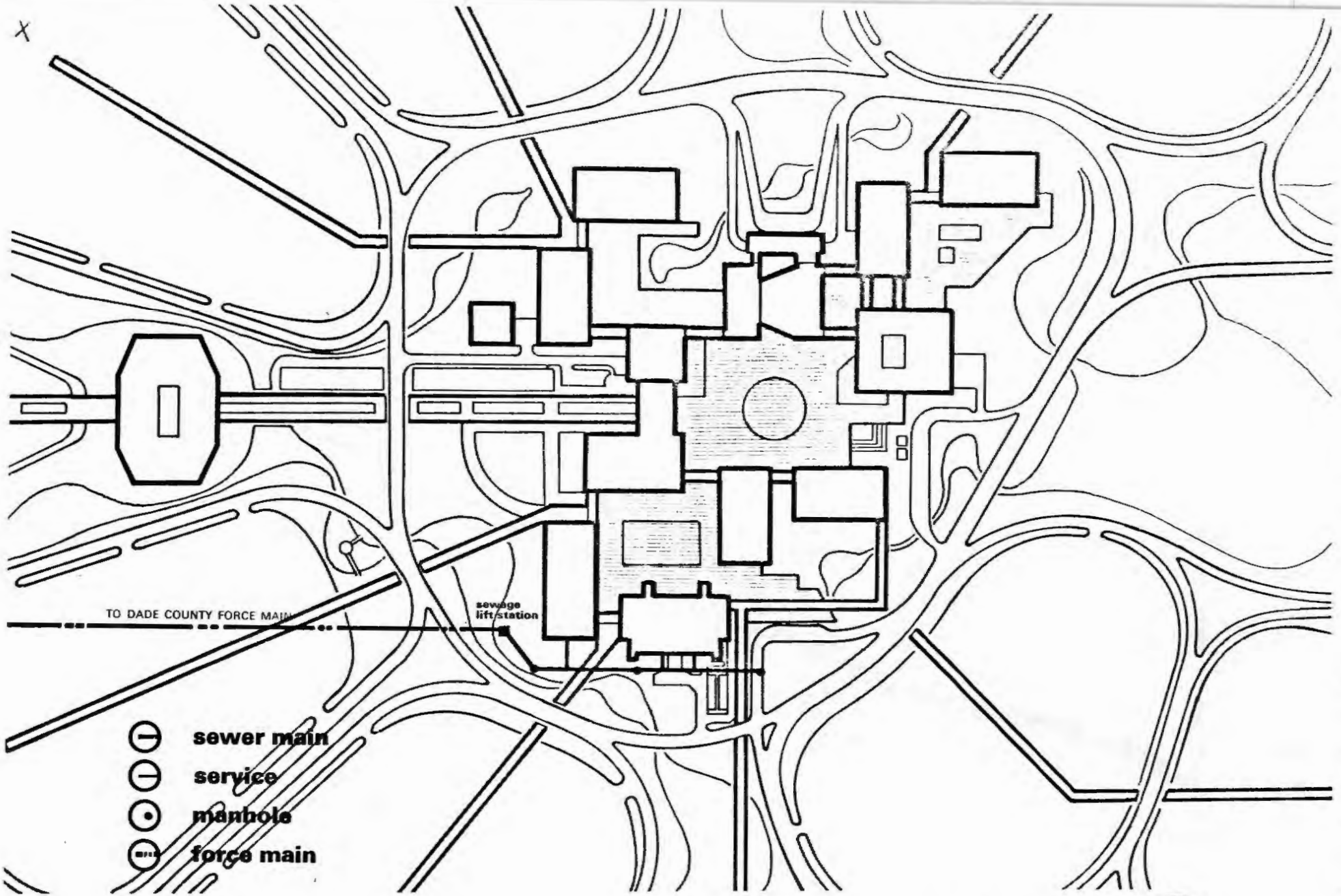
The final design of the sanitary facilities is required to conform to the regulations of the Florida State Board of Health and the Dade County Pollution Control Department.

Projected annual sewer charges are given on the following chart, based on the following proposed rates: (There is also an initial connection charge based on ultimate projected daily usage; this charge is estimated to be $92,500 for Florida International University, based on current construction costs.)

Unit Cost for Sanitary Sewer Service

$2.00 minimum charge for first	4,000 Gallons
$0.48 per 1,000 gallons for the next	16,000 Gallons
$0.44 per 1,000 gallons for the next	70,000 Gallons
$0.40 per 1,000 gallons for the next	110,000 Gallons
$0.38 per 1,000 gallons for the next	250,000 Gallons
$0.36 per 1,000 gallons for all over	450,000 Gallons





sanitary sewer – interim phase

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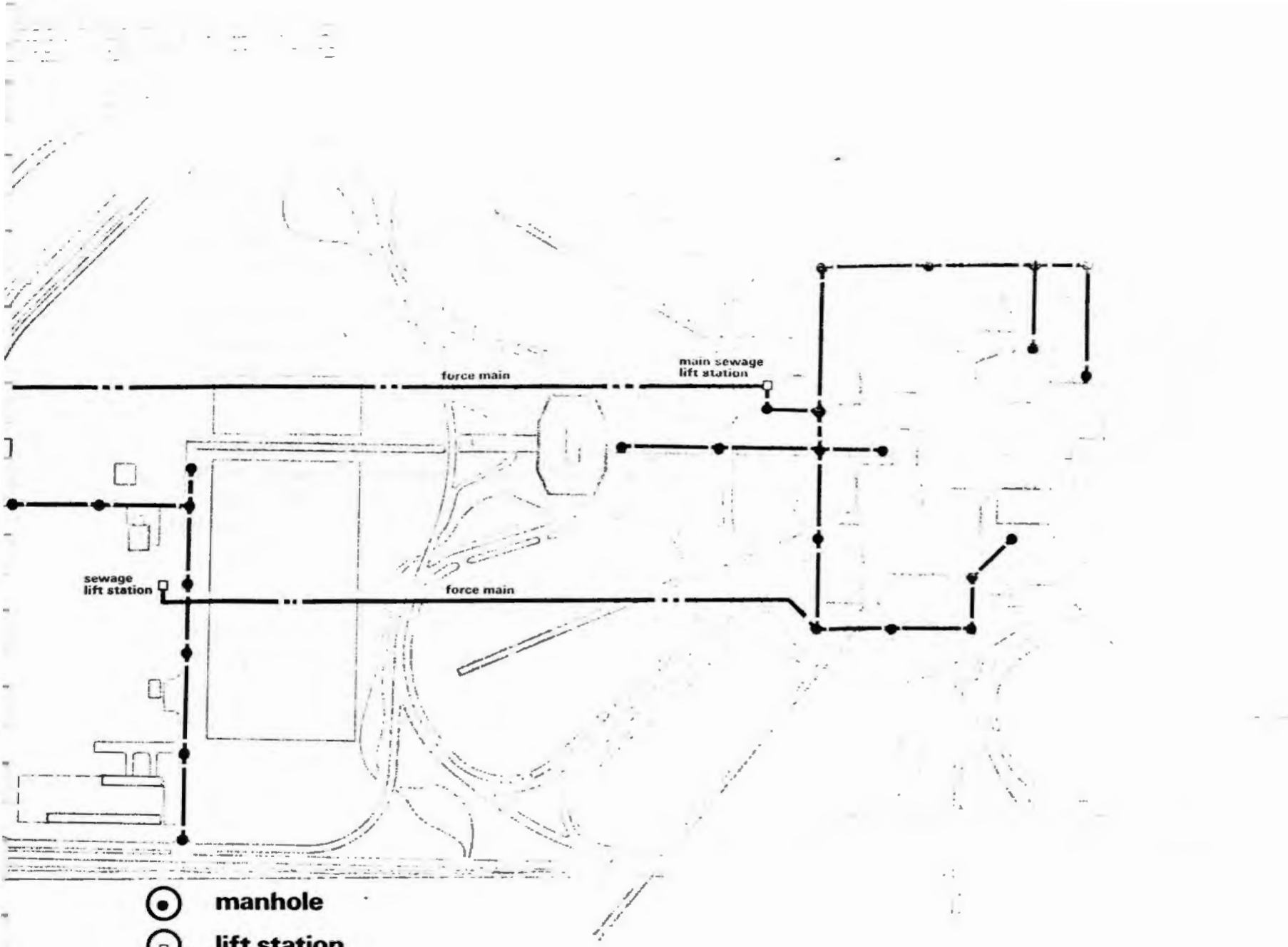

sanitary sewer

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AIR CONDITIONING AND HEATING

The following analysis compares central vs. unitary systems for heating and air conditioning the Tamiami Campus.

Three general approaches were examined: (a) provide one or more central plants from which hot and chilled water are distributed to the air handling units in the various buildings; (b) provide unitary heating and air conditioning systems in the various buildings; and (c) a combination of central cooling and unitary heating. The advantages and disadvantages of each system are as follows:

1. Diversity: A central plant can take advantage of the fact that the hours of peak load condition are not identical for all the various campus buildings, and its ultimate capacity can be approximately 75% of the sum of the individual capacities required with a unitary system. (See Exhibit 1).

2. Unit cost: The cost per unit of capacity decreases as the capacity increases, giving an advantage to the central over the unitary system. (See Exhibit 2).

3. Space requirements: The space required for equipment in a central plant is less than the total of individual space requirements necessary for unitary systems in the various buildings.

4. Unit cost of space: Not only is less space necessary in a central plant, but the cost per square foot of providing such space is for less in a simple central plant than in a complex educational building.

5. Electrical distribution system: By concentrating the major electric loads in a central plant, the cost of the electric power distribution is greatly reduced, as are losses due to distribution.

6. Efficiency: Large units are inherently more efficient than small ones. Moreover, meosures to increase efficiency or improve operation which are economically advantageous in a central plant would not be practical on a number of separate systems.

7. Operation at partial capacity: Heating and air conditioning equipment operates most efficiently at rated load. If seporate systems are used, equipment in the various buildings must generally operate at a fraction of rated load. However, in a central plant, multiple units of equipment can be provided making it possible to operate each unit at close to rated load.

8. Control: By centralizing equipment, control and maintenance of the system can be achieved with a minimum of manpower. The employment of a well qualified operator can be justified.

9. Reliability: In a central plant, it is possible by multiplicity of equipment to provide a measure of

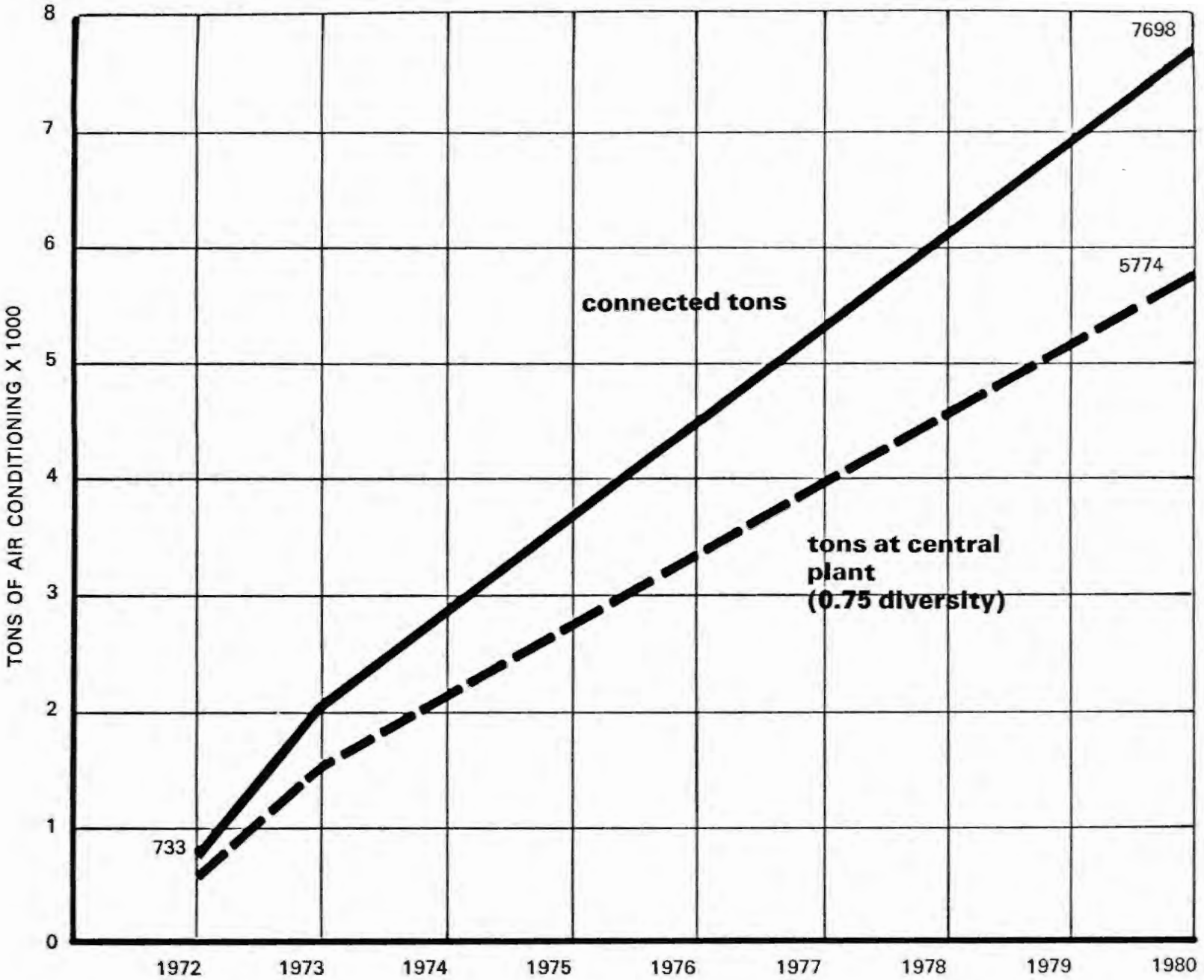


exhibit no. 1

estimated air conditioning demand

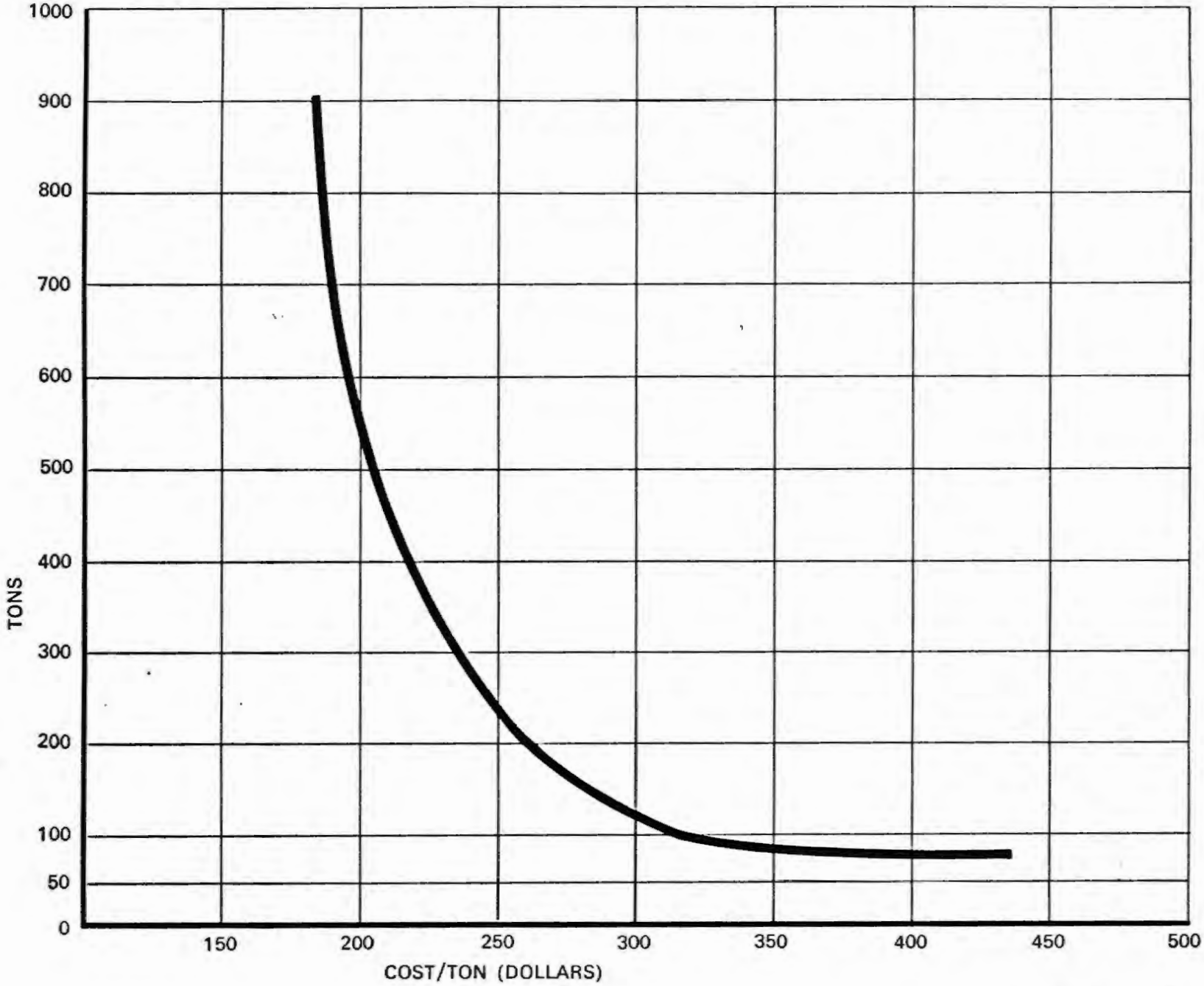


exhibit no. 2

average unit costs of installed refrigeration equipment

standby capacity. The cost of providing such reliability in group of separate systems would be much greater.

10. Noise: The possibility of noise or vibration of the individual buildings, as well as the need for costly noise attenuation measures, is much more of a problem with unitary than with central systems.

11. Architectural factors: Incorporation of mechanical space in buildings often presents architectural problems difficult to solve. By reducing the area required in the individual buildings, a central plant minimizes these difficulties. Also because cooling towers are concentrated at a central plant, the problem of making the cooling towers architecturally acceptable at each building is eliminated.

12. First cost: A central plant requires a distribution system not required for individual systems. It should be noted that the distribution system has been sized for future expansion and therefore, while a portion of its cost may legitimately be charged against future buildings, the initial costs are higher with a central system.

13. Heat losses: Heat losses in the distribution system are estimated at about 5 per cent of the capacity generated at the Central Plant.

The factors examined above give an advantage to the central system over the unitary system in every case except first cost and distribution heat losses. These two disadvantages could be partially overcome with multiple central plants, but in the situation at hand the savings would not be sufficient to overcome the disadvantages in many of the other factors examined.

The entire central plant will not be constructed in the first phase of compus development. A temporary equipment shelter will be constructed adjacent to the Multi-Purpose Building, and sized to accommodate the Multi-Purpose and the first instructional building. Construction of the permanent central plant will begin with construction of the second instructional building, and equipment initially contained in the temporary structure will be relocated to the permonent central plant facility.

The following equipment and facilities should be located in or adjacent to the central utilities building: (a) air conditioning equipment including compressors, pump, accessories, and a cooling tower field; (b) a central control system for the air conditioning and heating systems; (c) electrical transformer and switch gear; and (d) control points for the master clock, program systems, and the fire alarm system.

- Equipment

The following analysis compares equipment requirements

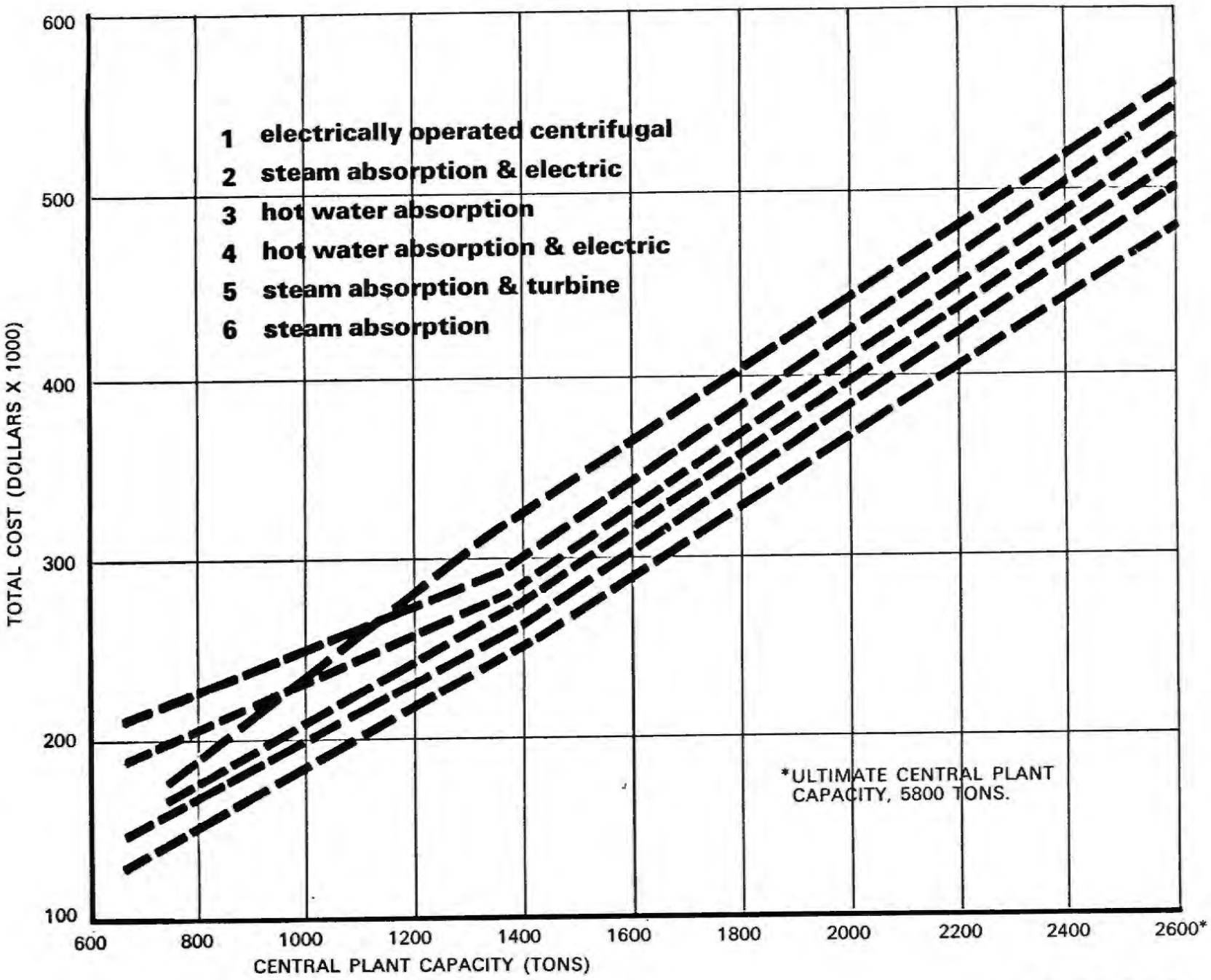


exhibit no. 3

a.c. equipment cost comparison

for central and unitary heating and air conditioning systems.

The superiority of one type of refrigeration equipment over another depends on whether winter heating or summer cooling is the major load, whether electric power is to be purchased by the University or generated on campus, and the magnitude of the total load. For the Tamiami Campus, the steam jet system was rejected as requiring unacceptable quantities of cooling water, and reciprocating compressors were judged inadequate in capacity for economical operation at the projected loads. Steam and hot water absorption, and centrifugal compressors were compared in terms of equipment and operating costs (see Exhibits 3 and 4). In both cases, the electrically operoted compressor was found to be most economical.

Estimated heating demands are shown in Exhibit 5. It should be noted that these demands are relatively minor compared to those for air conditioning. It is estimated that, in the climote of Miami, a building occupied 24 hours a day would require some degree of heating for less than 800 hours per year. On the other hand, such a building would require some degree of air conditioning for 8,000 hours per year. The small heating load compared with the hot water distribution expenses voids the advantage of a central heating plant, (see Exhibit 6).

A comparison of the unit costs of installed hot water vs. steam boiler (see Exhibit 7) favored hot water, which is also preferred in terms of operation. The type of hot water generator could be gas, oil, or electric. Gas and oil units will require flues and fuel storage facilities, which do not seem warranted in view of the low heating requirements. Electric hot water generators are therefore recommended. This analysis is subject to reconfirmation at the time each individual building is designed.

- Central Control System

Central control of heating and air conditioning will be located in the central plant, and will offer the following advantoges:

1. Fewer operating personnel will be required; it will be possible for a single qualified operotor to start or stop equipment, monitor and adjust space conditions in all buildings.

2. The system can be economical since better control can be maintained on starting and shutting down equipment.

3. The system can be better maintained since it is constantly being reviewed by a qualified person who can easily note evidence of malfunction or deterioration.

4. Central setting and monitoring of temperatures

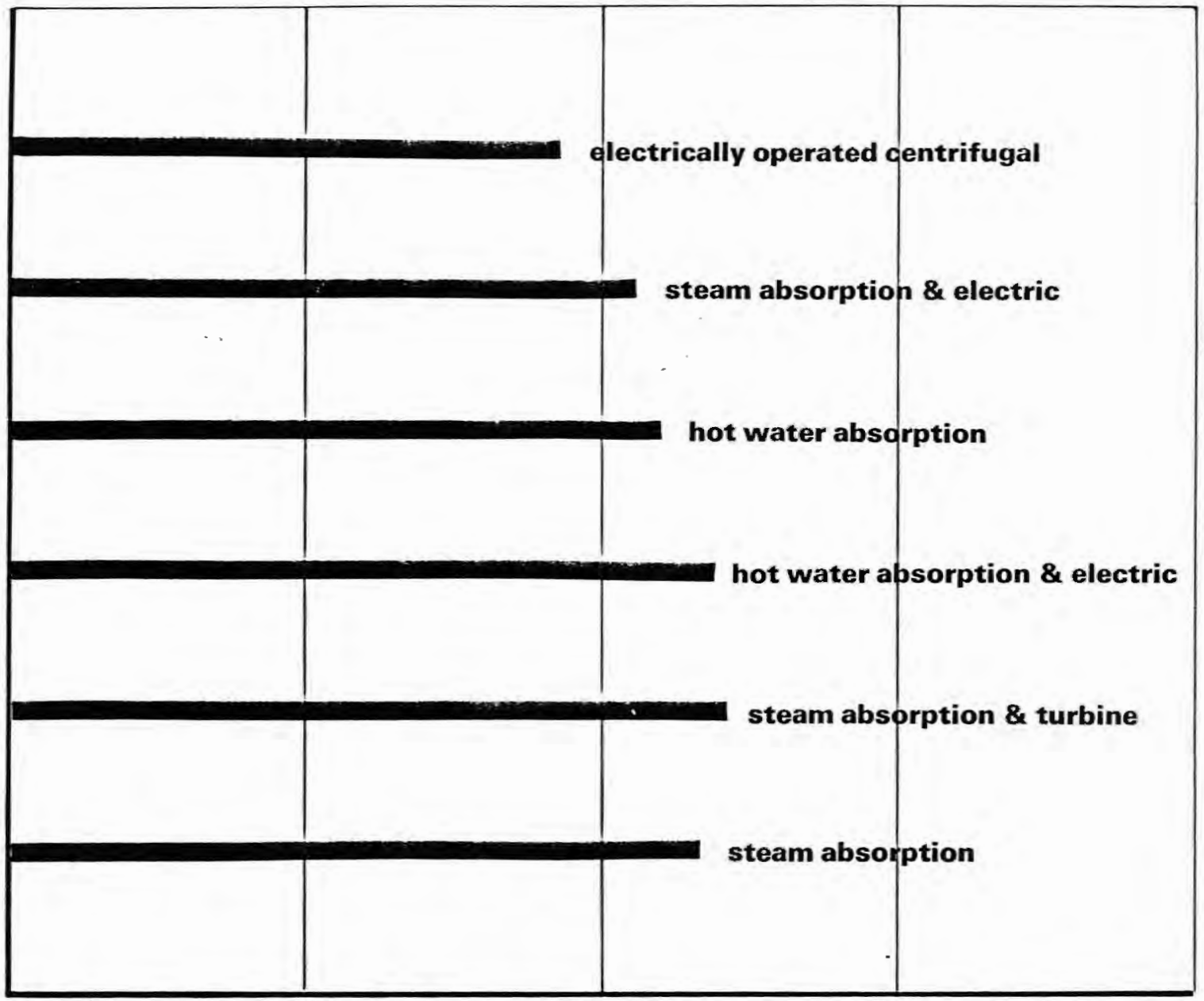


exhibit no. 4

yearly owning and operating costs of 800 tons a.c. (phase I).

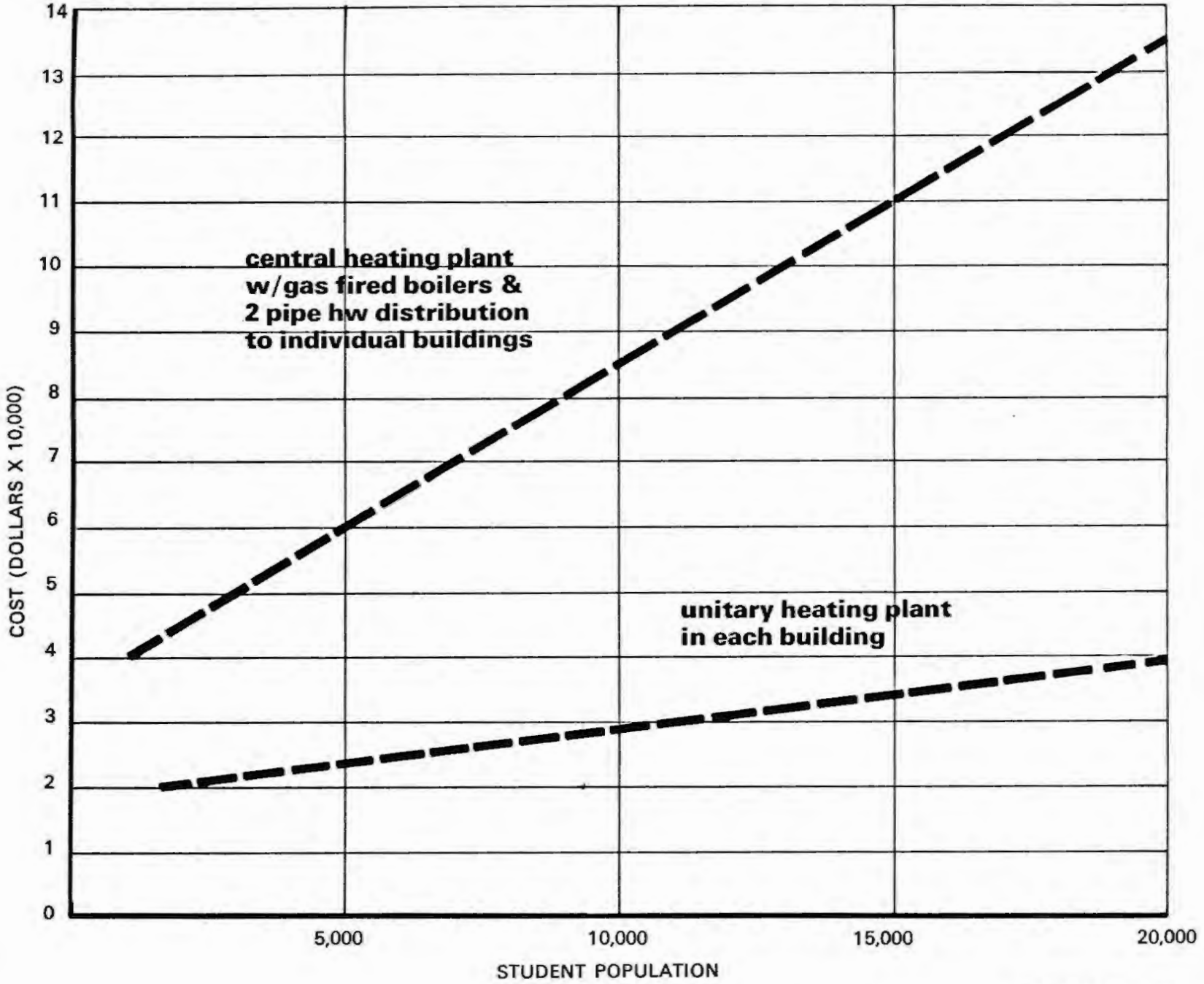


exhibit no. 6

estimated central vs. unitary heating costs

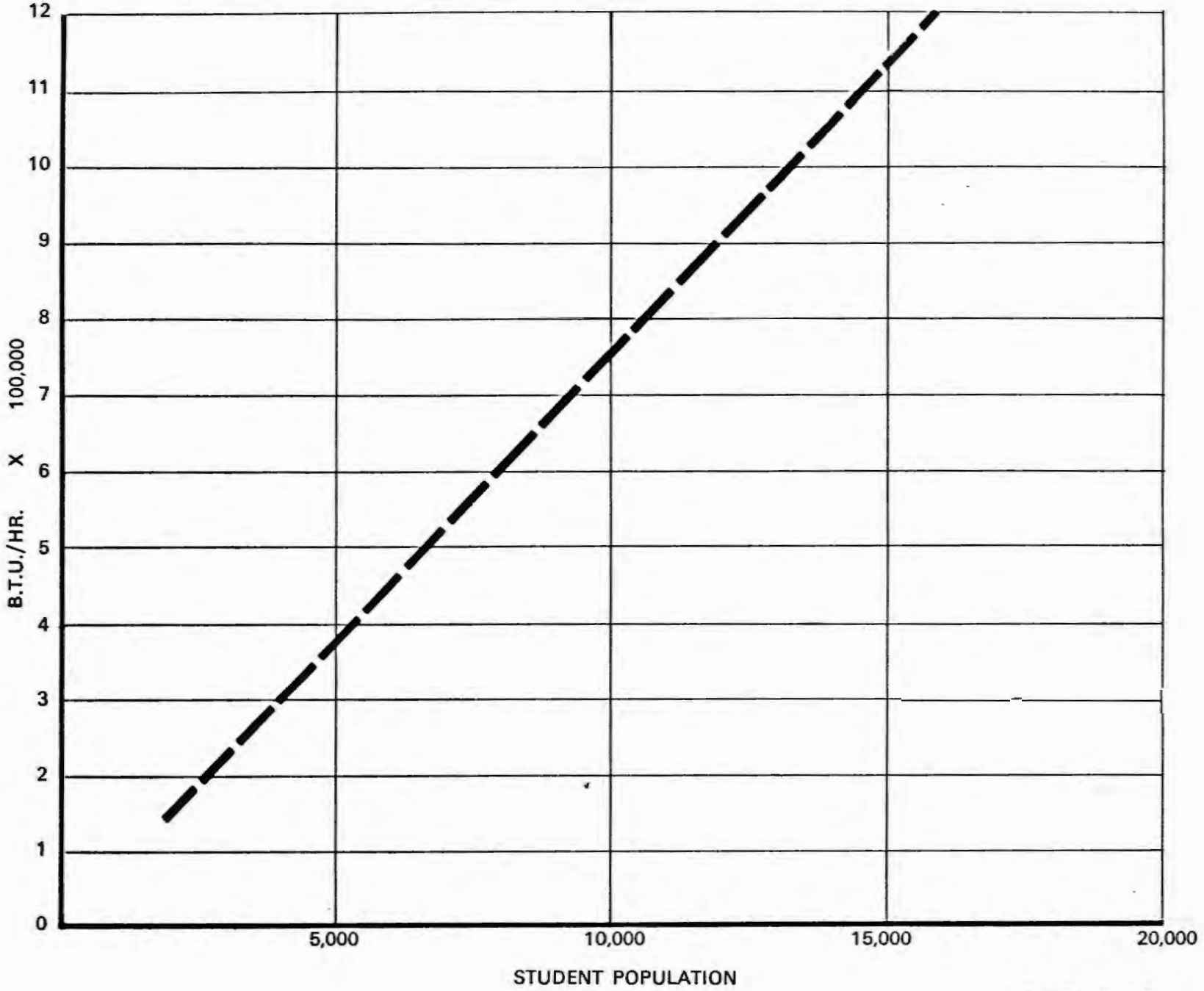


exhibit no. 5

estimated heating demands

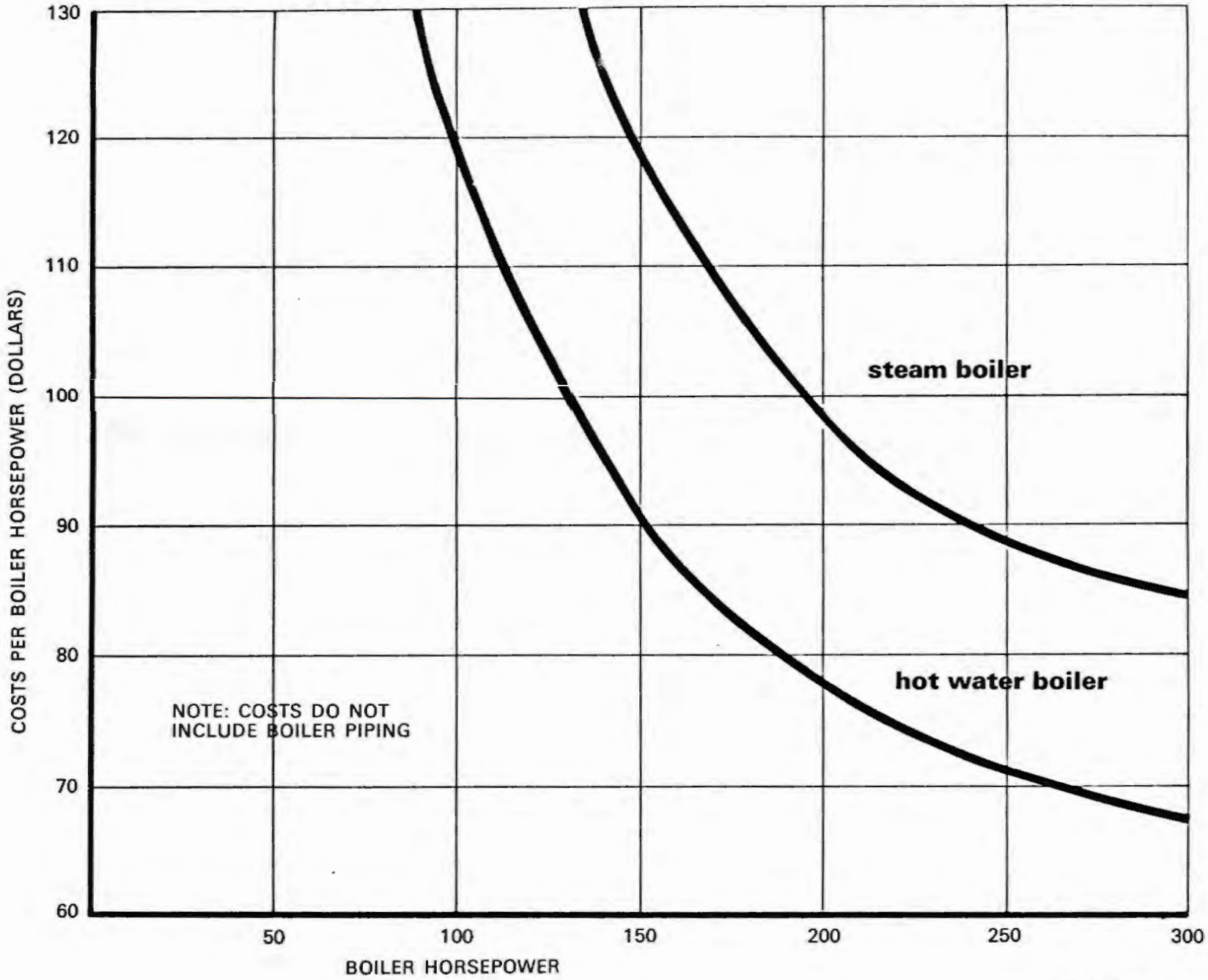


exhibit no. 7

average unit costs of installed heating equipment

(and humidities where such control is desired) keeps air conditioned space conditions under the control of a qualified operator.

The type of control system is related to the nature and size of the installation. Until recently central control systems were of the graphic panel type in which the entire system is indicated graphically on a panel. In a system of this size, the space requirements for such a panel would be enormous. A more recent development utilizes a small console. Graphic representation of various portions of the system is obtained by projecting a slide on a screen in the console. The particular slide is selected by means of push buttons on the console. The latter system will best serve the needs of Florida International University.

The central control console will contain a slide projector with a capacity for 100 slides, and the following features will be incorporated.

1. Start-stop control for central equipment.

2. Start-stop control for air conditioning fans in all buildings.

3. Pilot light indication of individual motor operation.

4. Temperature reading for chilled water, hot water, and condenser water at inlet and outlet of each piece of equipment in the utilities building.

5. Water temperature reading at inlet and outlet of each air handling unit in all buildings.

6. Temperature reset facilities for chilled and hot water systems.

7. Pressure readings for chilled water and hot water systems.

8. Room temperature reading and resetting for each zone of each building.

9. Relative humidity reading and resetting for each zone requiring relative humidity control.

10. Entering and leaving air temperature reading and resetting for every air handling unit.

11. Return, exhaust, and outside air damper positioning for every air handling unit.

12. Filter bank static pressure differential reading for each air handling unit.

13. Continuous indication of outside air temperature and relative humidity.

14. Control center with an appropriate multiplexed input, output capability can be utilized initially to

provide manual directed command and indication functions until complex size warrants addition of data logger scanner with interfacing capabilities to ultimate computer tie-in.

In the future, modular additions to the original console can be provided. Other features worthy of consideration in the future are as follows: (a) special communication system between the console and equipment locations to provide direct contact between operator and maintenance man when making adjustments, and (b) permanent graphic panel module for utilities building equipment. It is recommended that data be transmitted electronically from the individual indicating point to the console. The use of multiplexing relays reduces the number of conductors necessary. Multi-conductor cables to carry this information should be installed in the utilities trench with other communications.

POWER

- Source of Power

The Tamiami Campus will require power for the following needs: (a) electrical power for distribution throughout the campus; (b) power to operate refrigeration equipment in the Utilities Building to provide chilled water for the central air conditioning system; (c) power to heat water for the unitary heating system; and (d) power to operate miscellaneous equipment in the Utilities Building. This power can be obtained in three basic ways: (a) purchase all power, primary metered, and install primary distribution and construct all transformer vaults; (b) purchase all power, secondary metered, and utility company shall install primary distribution and construct transformer vaults; and (c) provide a power plant to generate all power required, step-up substation, primary distribution and transformer vaults.

Electric power is readily available from the Florida Power and Light Company. The usual commercial rates are shown in Exhibit 8. Note that these rates are the maximum permitted by State regulations. Universities are allowed a 20 per cent discount on these rates. If the University were to generate its own power, steam would be developed to drive steam turbines which would in turn drive generators, thus producing the necessary electrical power. Steam would be utilized to operate steam absorption refrigeration equipment. Besides the above methods, there

ELECTRICITY AND FUEL COSTS

- Electricity - Florida Power and Light Company

Monthly rates for commercial service - rate schedule "ES":
No charge for the first 20 KW of demand,
$1.75 per KW for the next 380 KW of demand,
$1.25 per KW for all additional KW of demand.
4.0¢ per KWH for the first 500 KWH,
3.5¢ per KWH for the next 500 KWH,
3.0¢ per KWH for the next 1,000 KWH,
2.5¢ per KWH for the next 2,000 KWH,
2.2¢ per KWH for the next 60 KWH per KW of demand,
1.3¢ per KWH for the next 7,000 KWH,
1.0¢ per KWH for the next 30,000 KWH,
0.9¢ per KWH for the next 40,000 KWH,
0.7¢ per KWH for all additional KWH.
Note: These rates are maximum permitted under State regulations.

- Air Conditioning Rider "CSA":

Florida Power and Light Company will credit the customer $1.00 for each KW of restricted demand. This includes all air conditioning equipment (except heating) that can be shut down between 5:30 p.m. to 9:30 p.m. each day from 1 December to 31 March inclusive if over 100 KW.

- Public School Rider "SC":

Florida Power and Light Company will credit twenty percent of the bill before "adjustments" for services used by universities operated by the State of Florida.

- Gas - Miller Gas Company

Rates on interruptible basis - industrial use:
$0.079 per therm for first 8,000 therms,
$0.058 per therm for next 12,000 therms,
$0.055 per therm for next 20,000 therms,
$0.050 per therm for next 60,000 therms,
$0.040 per therm for all additional therms.

Rates on commercial air conditioning = $0.075 per therm "negotiable" depending on demand.
Gas rates based on cost of gas adjustments.

- Oil - Belcher Oil Company

Carload lot delivered to university $0.061 per gallon for Bunker "C" Oil.

are many possible combinations which provide a compromise between generation of all power and purchase of all power. Due to initial equipment and operating costs for generated power the use of purchase power is preferred since the system will be less elaborate and expensive. Also, in the event of plant failure, there is no back-up service as provided by purchased power.

The annual cost of power for three alternatives is shown in Exhibits 9 and 10. These exhibits represent the following items: amortization of equipment, interest, capital investment, salaries of operating persannel, fuel costs, maintenance, and insurance. The economic camparison shown in Exhibits 9 and 10 is based on rates and costs shown in Exhibit 8. An appreciable change in these rates could influence the recommended course of action. It is recommended that hot water generators be electrically driven and all electric power be purchased by the University.

- Electric Power Distribution and Control

Forecasting the electric power requirements of the University presents a problem in that average records are not available for any comparable institutian. Records of the requirements of the Florida State University, the University of Miami, the University of Florida, Florida Atlantic University, and the University of South Florida shown in Exbit 11, offer valuable guidance. Estimated demands and costs are shown in Exhibits 12 and 13.

An agreement should be reached with the Florida Power and Light Co. to provide electrical power. Reliability of service will be assured by a right of way at the property for a transmission line and space on campus for a new substation. The location of the proposed line and substation is shown on Exhibit 14.

Three-phase primary current will be transmitted from the substation to the power distribution center to the individual building. This feeder shall be underground, encased in a duct bank. Florida Power and Light has indicated that power will be delivered by them to the individual building at the primary voltage and then stepped down at the building vault to the building requirements before delivery to main switchgear. Where it is necessary, as in this case, to deliver a great deal of electrical energy over relatively lang distance, economy dictates the use of a high distribution voltage. A system voltage of 13,200 volts is recommended. Equipment in the Utilities Building should be designed to operate on 480 volts. A parallel radial distribution system will be employed. This system utilizes two or more feeders either one or combination of which is capable of supplying full pawer requirements. Under normal conditions, the load is shared by each of the feeders, but in the event of malfunction of one feeder, all loads can be transferred to the operative feeder or feeders. Power cables will be in an underground duct bank system and vaults will be located in individual buildings above grade. A vault can serve one or more buildings.

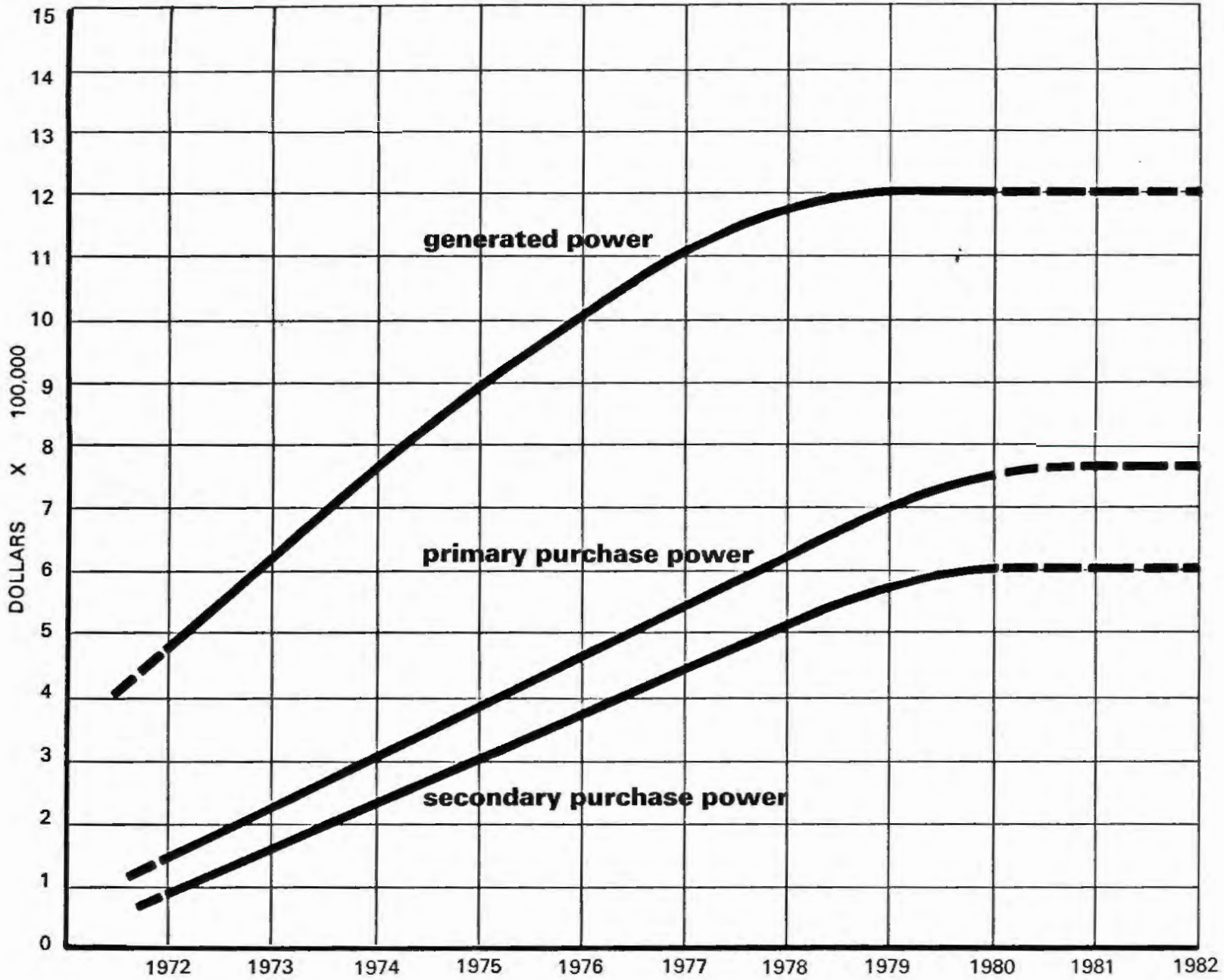


exhibit no. 10

yearly power operating costs per phase

POWER COST ANALYSIS (1980)

exhibit no. 9

I. On-Site Power Generation:			Annually
A. Initial Expenditure	$5,235,000		
1. Generating Plant	$3,750,000		
2. Transformer substation	300,000		
3. Distributian System	1,185,000		
B. Capital Expenditure			$656,000
1. Repayment Cost ($5,235,000/20 yrs. @ 5% Int.)		$ 399,000	
2. Replocement amortization ($5,137,000/20 yrs.)		257,000	
C. Out of Pocket Expenditures			$537,000
1. Real and Personal Property Taxes		$ 0	
2. Insurance		85,000	
3. Fuel (Waste Heat Credited)		212,000	
4. Maintenance		180,000	
5. Labor		60,000	
D. Total Annual Expenditures			$1,193,000
II. Purchase Power - Primary Metering:			
A. Capital Expenditure			$145,000
1. Repayment Cost ($1,185,500/20 yrs. @ 5% Int.)		$ 90,500	
2. Replacement Amortization ($1,087,500/20 yrs.)		54,500	
B. Out of Pocket Expenditure			$630,500
1. Real and Personal Property Taxes		$ 0	
2. Insurance		14,000	
3. Electric Service Cost		571,500	
4. Maintenance (Service Contract)		45,000	
5. Labor		0	
C. Total Annual Expenditures			$ 775,500
III. Purchase Power - Secondary Metering:			
A. Capital Expenditure			$ 0
B. Out of Pocket Expenditure			$612,000
1. Real and Personal Property Taxes		$ 0	
2. Insurance		0	
3. Electric Service Cost		571,500	
4. Maintenance Service Contract		0	
5. Labor		0	
6. Additional Metering		40,500	
C. Total Expenditures			$ 612,000

exhibit no. 11

ELECTRICAL POWER REQUIREMENTS OF OTHER UNIVERSITIES IN FLORIDA: 1969

Institution Name and Location	(KVA) Total Load Connected	(KW) Highest Demand	(KWH) Energy Consumption in Mo. of Highest Dem.	Ratio of Conn. Load to Max. Demand	Student Population
Florida State University - Tallahassee	26,700	10,400	5,040,000	38%	15,700
University of Florida - Gainesville	36,400	27,400	8,000,000	75%	21,500
University of South Florida - Tampa	12,500	5,200	2,610,000	42%	15,000
Florida Atlantic University - Boca Raton	6,700	3,800	1,500,000	57%	5,000
University of Miami - Coral Gables	14,500	9,700	5,750,000	67%	17,000

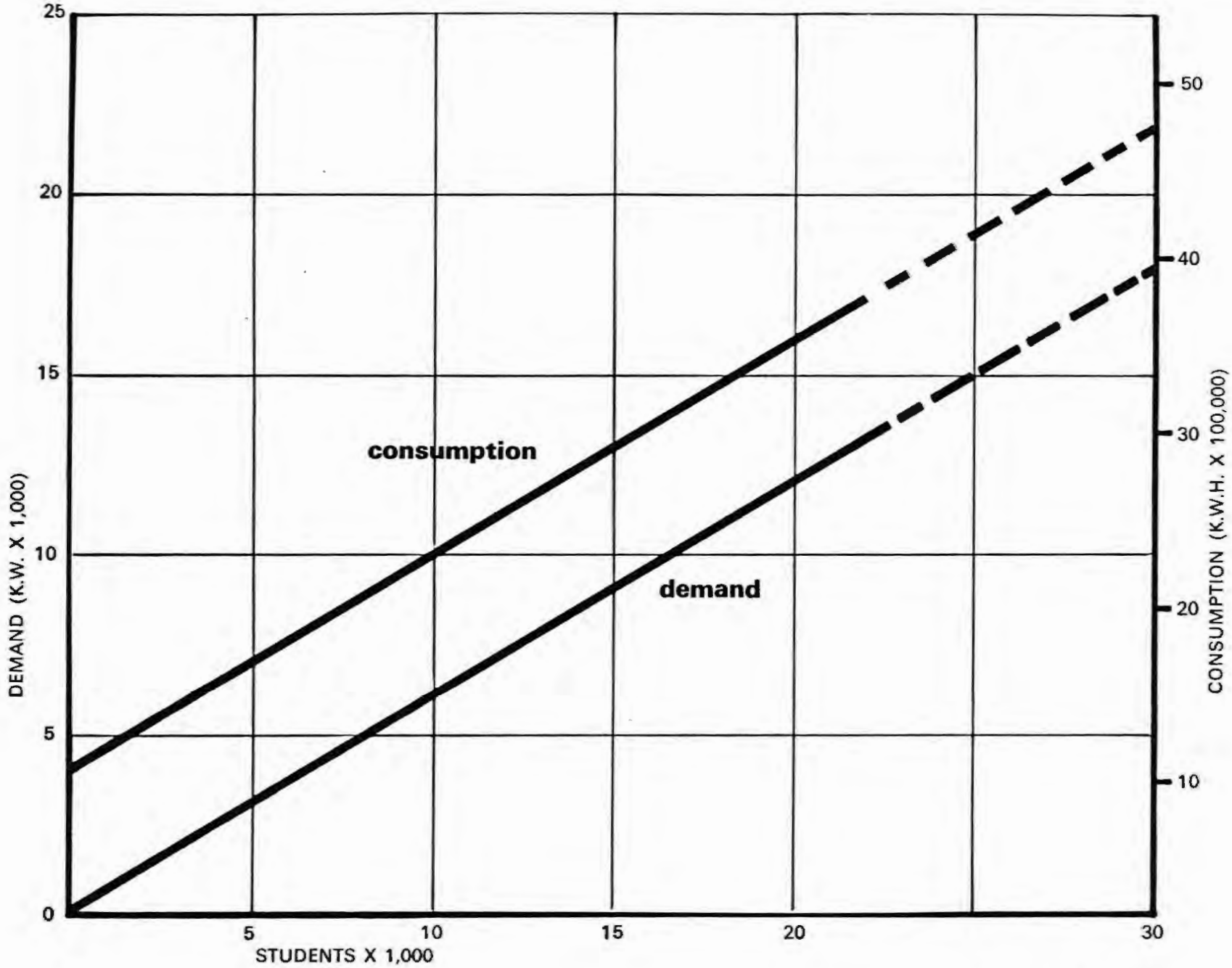


exhibit no. 12

estimated power demand and monthly energy consumption

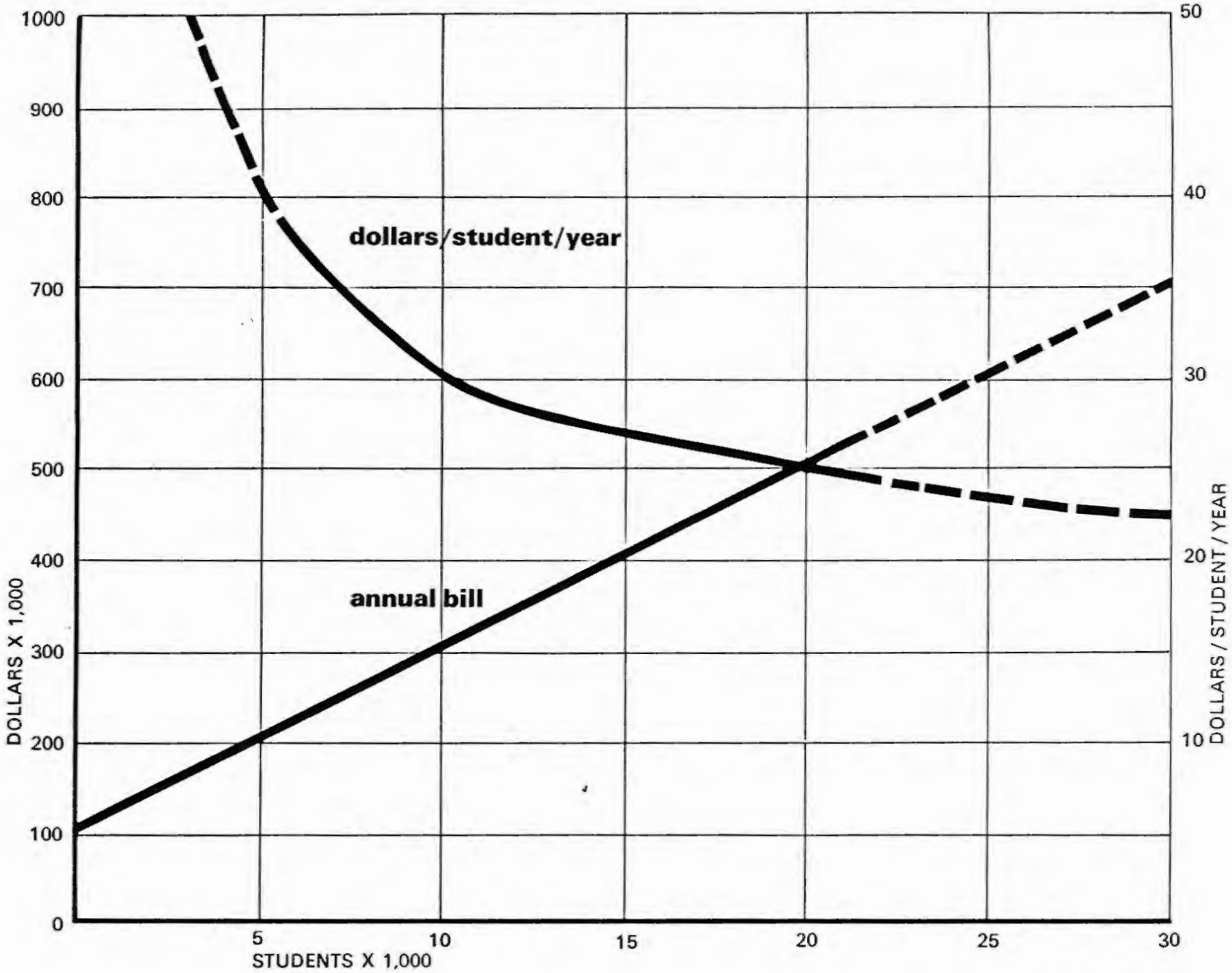
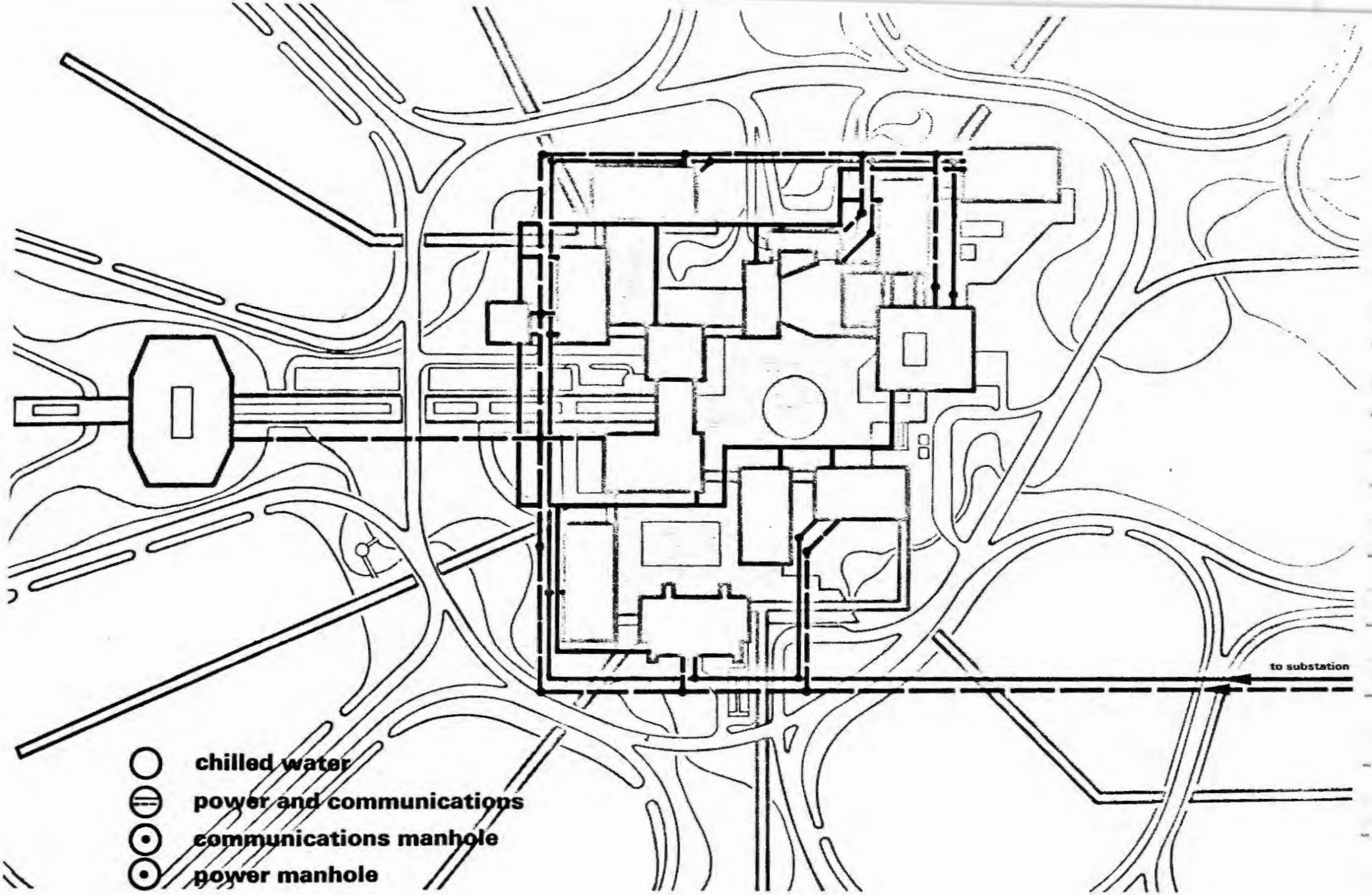


exhibit no. 13

estimated electrical energy cost



power, communications, and chilled water systems

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COMMUNICATIONS AND EDUCATIONAL TECHNOLOGY

The communications system is comprised of three major elements: (a) telephane; (b) master clock and program; and (c) fire alarm.

Although the University may elect to retain ownership of the telephane system, this would leave the University with the responsibility for first cost and maintenance and such a course is not advisable. By leaving ownership in the hands of the utility company, the University need only provide space for cables and switchboards and means of installing cables. The Centrex System, a communications service system, will be employed and offers a flexible "mix" of phone services especially selected to meet the needs of the high volume and relatively sophisticated customer. Each station may have its own phone number, so each may be dialed directly and dial its own calls without intervention of an attendant. Typical Centrex services include direct outward and inward dialing; direct inside dialing for interorganizational communications; automatic call transfer; automatic identification of outward station hunting, which automatically routes call to another line when a called line is busy, and a variety of other services. This is the recommended system.

Two types of master clock and program systems are available. One is the synchronous system consisting of a master clock and programmer and utilizing conductors for distribution. The second system is the electronic, consisting of a master clock, programmer and transmitter. No additional distribution network is required by the electronic system since signals are transmitted to clocks and bells over the electrical power distribution cables. The electronic system is recommended. The control point should be in the Central Utilities Building.

A Pre-Signal Annunciated Fire Alarm System is recommended. In this system, the activation of a break-glass or automatic station in a building and an annunciator indicates the location of the activated station. If investigation reveals a fire, the general alarm is sounded. All signals should be repeated in the Central Utilities Building to provide control when individual buildings are unattended.

Communication conductors will be in a duct bank system paralleling power distribution system. Spare ducts will be provided in the communication duct banks for future TV cables and other innovative educational technologies, and spare power will be provided in all buildings for such future equipment.

AREA AND STREET LIGHTING

The lighting system will be designed to provide foot candle levels in accordance to latest I.E.S. recommendations —approximately 3-foot candles at parking areas, 1 foot candle at walkways, and 0.5 foot candles at roadways. Fixtures shall be of the mercury vapor lamp type with either anodized aluminum or precast concrete poles to fit the aesthetics of the campus. Parking area and roadway fixtures will be similar. Walkway fixtures will be similar, but smaller.

GAS

Gas may be utilized for the following purposes: (a) laboratory use; and (b) gas fired kitchen or other equipment in the various buildings. Gas is available from two sources: (a) Liquid Propane (LP) into storage tanks provided by the University; and (b) Natural Gas delivered to the University by means of a pipeline. An existing gas main runs along the northern perimeter of the site and can be branched to follow the perimeter of the building sites similar to the water mains.

The following information has been supplied by Mr. Richard Fleisher of the Miller Gas Company, in Miami:

1. To date, the Miller Gas Company has established no institutional gas rates. Observations have been made on the basis of interruptable industrial rates.

2. Gas rates are shown in Exhibit 8.

3. In the event that absorption air conditioning equipment is used, the quantities of gas required might be sufficient to warrant a reduced gas rate This would, however, be subject to negotiation and no firm commitment can be made.

On the basis of the rates shown in Exhibit 8, electrically-driven equipment has been recommended.

If, in the future, a firm commitment of lower gas rates is offered, the effect of the recommendation of this report should be re-studied.

RECORD KEEPING

The importance of accurate records of the location of utilities cannot be over-emphasized. To accomplish this, a permanent reference grid is required on the site. Such a grid exists in the Corps of Engineers, East Florida Grid System. It is recommended that all buildings and utility lines be precisely located on the working drawings with reference to this grid. Construction contracts should require permanent markers as necessary to make measurements easy. Accurate As-Built Drawings are essential.

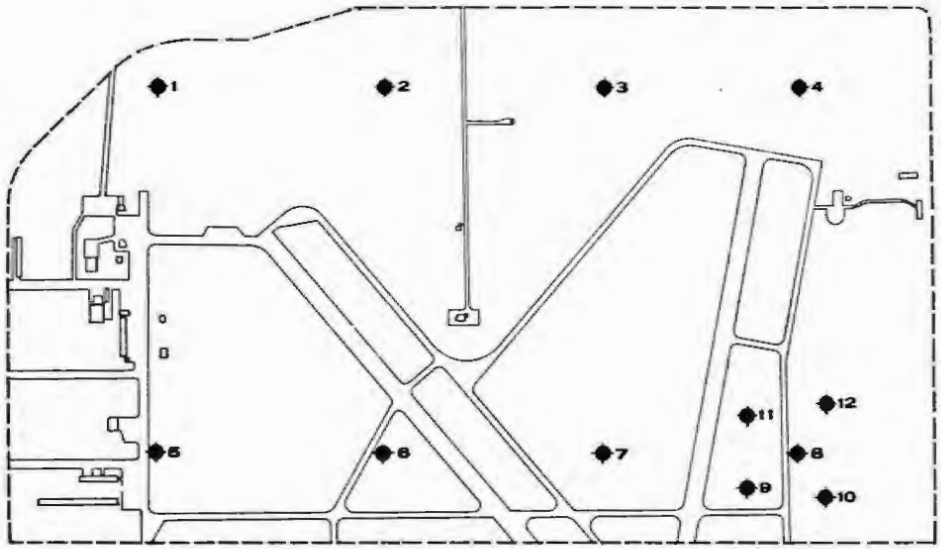
PART TWO
site conditions

SUBSURFACE INVESTIGATIONS

Subsurface conditions were investigated and discussed in Part III (Tamiami Campus Plan) of this report.

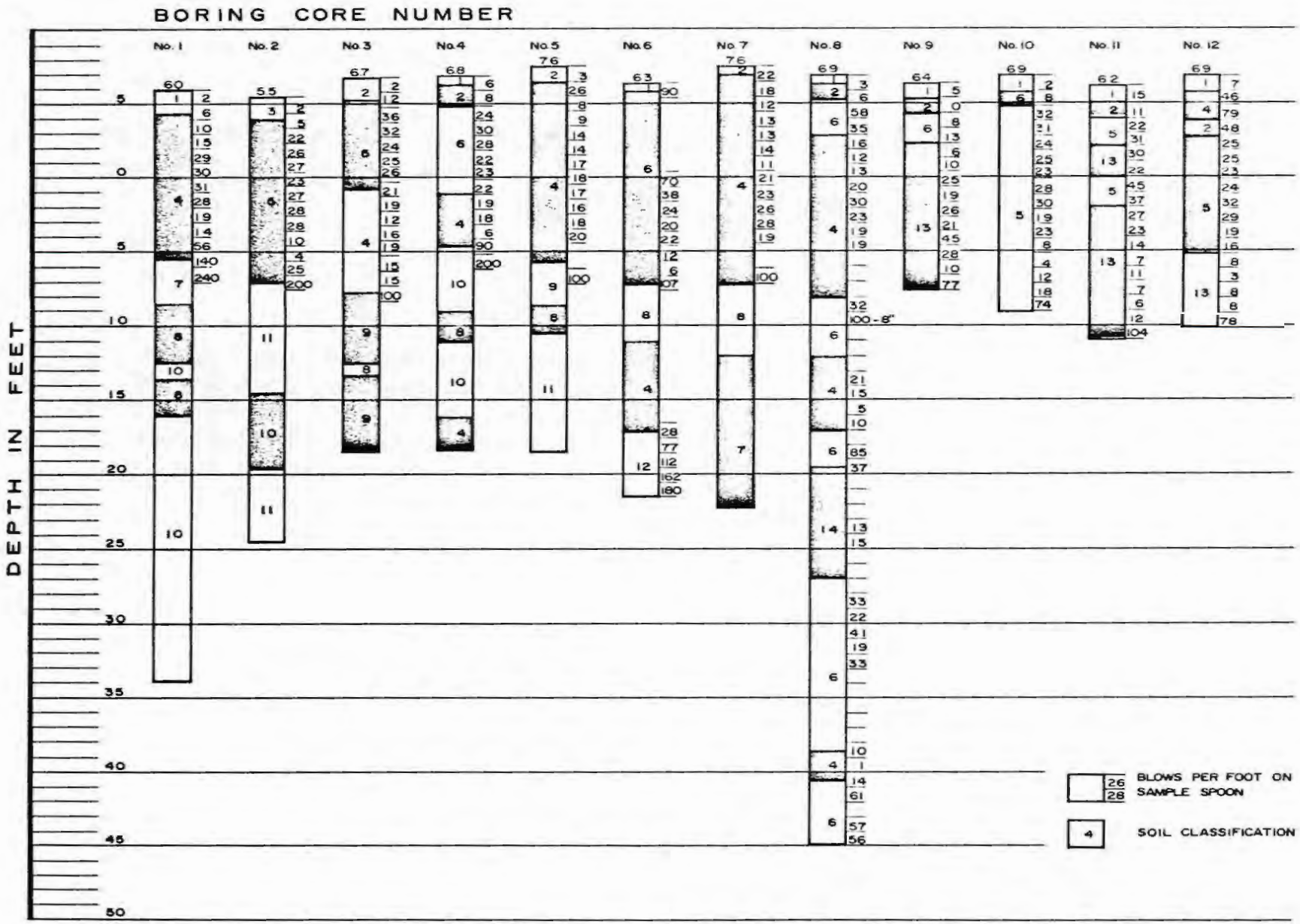
Initially, eight borings were made, located as shown on the map. With the exception of boring #8, a limerock stratum was found at a depth of approximately twelve feet. At boring #8, a firm rock stratum was not encountered until a depth of forty-seven feet. Four additional borings (#9-12) taken in this vicinity indicated that this sand pocket was localized.

The following boring logs indicate bearing quality and soil materials faund at each boring location.



Soil Classification Table

1. Organic - dark brown sandy - topsoil
2. Sand - dark brown with some clay
   Sand - brown
   Sand - brown silty
3. Sand - gray
4. Sand - light brown and rock fragments
   Sand - brown and rock fragments
5. Limestone - tan sandy
6. Limestone - brown sandy
7. Limestone - brown light
8. Limestone - brawn light hard apparently brecciated
   Limestone - brown hard
   Limestone - light hard dense
   Limestone - light hard extremely dense
9. Limestone - brown light porous
10. Limestone - brown light soft
    Limestone - tan light soft
    Limestone - tan light soft slightly foss
11. Limestone - tan light slightly foss
    Limestone - tan light slightly foss porous
    Limestone - tan light somewhat foss
12. Limestone - tan light silty
13. Limestone - white sandy
14. Clay - sandy tan



boring logs

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SURVEY OF EXISTING BUILDINGS

A survey of the existing buildings on the Florida International University Tamiami Campus site was conducted in December 1969. Recommendations for disposition of each building were presented, based on the general condition, structural soundness, and anticipated problems associated with remodeling into standard usable condition.

Sixteen buildings (the Control Tower was excluded) were surveyed; they are labeled "A" through "R", and their locations are indicated on the enclosed Site Plan. A summary of the condition of the buildings is as follows:

1. Building "A" has been removed.

2. Buildings "B" and "J" have been removed.

3. Building "E" is part masonry and part frame. It is not suitable for refurbishing and should be removed.

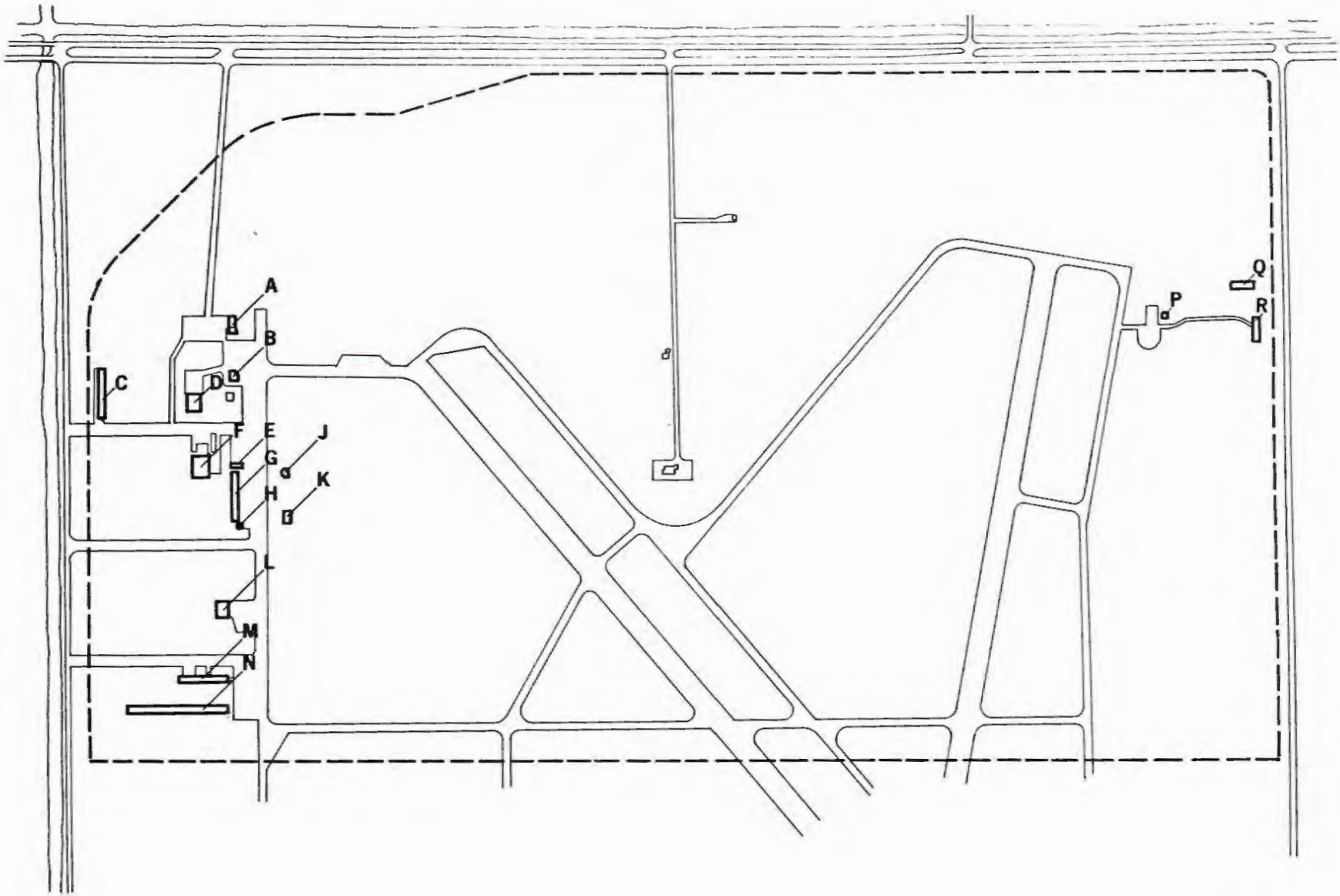
4. Building "L" is a wood column building with metal siding. It is not structurally sound and should be removed.

5. All other buildings ("C", "D", "F", "G", "H", "K", "M", "N", "P", "Q", and "R") can be successfully refurbished.

A summary chart is enclosed which shows the condition, approximate dimensions, construction and recommendations for disposition. The "pictures" referred to have been delivered to the Florida International University staff. The designation and location of each structure are shown on the map.

Building No.	Picture	Condition	Size**	Area S.F.	Ceil. Ht.	Bott. of Trusses	Description	Recommendations
A	1, 2	V.P.*	-	-	-	-	Frame	Remove
B	6	V.P.	-	-	-	-	Frame	Remove
C	3	Fair	224' x 31'	6,800		12'-2"	Exposed Masonry	Refurbish
D	3, 4	Fair	60' x 80'	4,800		12'-0"	Exposed Masonry	Refurbish
E	13	V.P.	-	-	-	-	Frame & Masonry	Remove
F	7	V.G.*	100' x 80'	8,000	21'HP	Stl. Bnt.	Metal Frame, Metal Siding	Refurbish
G	14, 13, 11	Poor	222' x 31'	6,830	-	12'-6"	Exposed Masonry	Refurbish
H	10, 11	Poor	16' x 25'	400	8'-6"	-	C B S	Refurbish
J	8	V.P.	-	-	-	-	Frame	Remove
K	9	Poor	50' x 42'	2,100	-	12'-0"	Metal Frame, Metal Siding	Refurbish
L	15	V.P.	61' x 77'	-	-	-	Wood Columns, Metal Siding	Remove
M	16, 17	Fair	216' x 30'	6,590	-	11'-0"	Exposed Masonry	Refurbish
N	18, 19, 20	Fair	435' x 30'	13,000	-	12' & 9'	Exposed Masonry	Refurbish
P	21	Poor	24' x 31'	744	8'-0"	-	C B S	Refurbish
Q	22, 24	Fair	97' x 31'	2,984	11'-0"	-	Exposed Masonry	Refurbish
R	23	Good	30' x 98'	2,940	13'-4"	-	Exposed Masonry	
Total Area of 11 Buildings.				55,190 S.F.				

*V.P. = Very Poor V.G. = Very Good
**Rounded off to nearest foot



building location map

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PART THREE

traffic and transportation

TRANSPORTATION STUDY

- Summary

The Greenleaf/Telesca staff, assisted by Barr, Dunlop and Associates, Inc., conducted studies of the vehicular movements that will be generated by the Florida International University Tamiami Campus during the years 1972-1980. Requirements for arterial improvements during the same period were then established.

The method of the study was as follows:

Place of Residence

Projected Florida International University enrollments (from Part II) were allocated following the geographical distribution of Miami-Dade and Broward Junior College students.

Approach to Campus

Assignments to approach corridors were made, based on the existing and proposed regional highway network, and place of residence.

Peak Period

Projected Florida International University enrollments,

schedules, and employment were used, and compared with experience elsewhere, to determine peak period movements.

Capacity Required

Peak period movements were assigned to arterials in the vicinity of the campus, by approach corridors. The necessary number of moving and auxiliary lanes was then specified.

The findings of the study were that accessibility and external arterial capacity are not factors which will limit the growth of the Tamiami Campus as projected through 1980, given the completion of the proposed arterial improvements. Any congestion that moy occur will be no more severe than levels elsewhere in the Miami area.

- Sections

Section One

This is the Barr, Dunlop and Associates, Inc., report of 16 March 1970. It reviews the programmed and required arterial improvements in the vicinity of the Tamiami Campus, and compares this capacity with the needs generated by Florida International University traffic. Points of possible congestion are identified and remedial meosures are suggested.

Sections Two and Three

These are assumptions affecting trip origins, arrival times, and total numbers of vehicles ot the Tamiami Campus. They are referred to in the Traffic Growth Stages portion of the Barr, Dunlop and Associates, Inc., report.

Sections Four and Five

These are projections of vehicular movements of the Tamiami Campus during the morning peak period, with assignment to approach corridors. These assignments are refined in Table One of the Barr, Dunlop report.

Section Six

This is a tabulation of maximum parking spaces that will be required at the Tamiami Campus.

section one

TRAFFIC ENGINEERING REPORT

Pertaining to the Proposed Development of
Florida International University

16 March 1970

BARR, DUNLOP & ASSOCIATES, INC.
Consulting Engineers and Planners

TRAFFIC ENGINEERING REPORT

Pertaining to the Proposed Development of Florida Internotional University

- Background

1. Preliminary Investigation

In the course of site development planning for the proposed Florida Internationol University in Miami, much consideration has been given to the traffic problems which might be brought about by the odded traffic of this sizable institution, the nature of the arterial improvements required to accommodate this traffic, and the possibility that accessibility might be a limiting factor in the development of the University. A preliminary investigation was requested and performed to indicate the magnitude of traffic impact on the street system leading to Florida International University. This investigation, as reported on 2 February 1970, revealed that:

a. The multi-lane arterial improvements now programmed, alang with oppropriate signalization and auxiliary lanes, will provide adequate capacity for Florida International University traffic in its initial and early years, and that;

b. As the University grows beyond 16,000 and up to 20,000 enrollment, connections to and from the proposed West Dade Expressway would be highly desirable, assuming it would become, ultimately, a toll-free facility or one with modest tolls for students.

2. Conference of 2 March 1970

A conference was held among representatives of the University and of the Consultants on 2 March 1970. The principal points discussed and the results of this conference are summarized in the following paragraphs:

a. It was pointed out thot the preliminary findings indicated there would be adequate capacity in the early years, and that as the University and its traffic demands grew, capacity problems would occur and would, of necessity, be alleviated by the County and State. In light of this, it was agreed that it would be inadvisable and futile to demand any commitments now for specific County or State roadway improvements which need not be provided until after the first few years of University operation. However, it was concluded that information regarding the magnitude of future Florida International University traffic should be developed for use by the County and the State in their further planning and programming.

b. It was reported that further cross-checking with various authorities pointed to the strong likelihood that the West Dade Expressway will be built (probably

within the next 2 to 3 years) as a toll facility. It was agreed that the preliminary traffic impact findings should be reviewed with the assumption that, even if appropriate ramps were provided, the tolls on this expressway would be such as to make it prohibitive for students to use it for daily commuting.

c. Concern was expressed by the University representatives as to the amounts of non-University traffic upon which the Florida International University traffic would be superimposed, and the possible future effects of adjacent housing development and of a nearby major shopping center. Although the preliminary investigation indicated that the time-of-day and directional characteristics of the non-University travel were such as to not add significantly to the University traffic problem, it was requested that these factors be explored more thoroughly.

d. Improvements committed by the County, as revealed in the preliminary investigation, were discussed. It was agreed that these should be reconfirmed and specifically identified.

e. All assumptions used as the basis for the preliminary investigation, and listed on a five-page statement dated 20 February 1970 were reviewed. (These can now be found in Section Two). It was agreed that all were reasonable and should be used in this further review and traffic engineering report.

- Non-University Traffic

As reported in the preliminary study, existing and projected non-University traffic volumes were examined as to additive effects and traffic conflicts which could be anticipated with University traffic superimposed. Average, areawide growth factors were applied. Indications were that, because of the differences in directional and time-of-day characteristics between University and non-University traffic, the volumes of traffic moving toward the University in the morning peak period would not be significantly increased by adding non-University traffic moving in the same direction at the same time. However, it was noted that traffic moving in the opposite direction (generally toward the Miami International Airport and the central business districts of Miami and Coral Gables) will present o conflict factor at the major intersections near Florida International University, even though such traffic will have passed its peak before the 7:30 to 8:00 a.m. University traffic peak begins.

A more detailed examination was made of present and proposed development in the vicinity of the Florida International University site. The recent "Florida International University Community Land Use Study" (a University of Miami Thesis by Ricardo S. D'Jaen, January, 1970), was reviewed, and even more recent information was obtained from the County Department of Planning. This information is summarized in Exhibit 1.

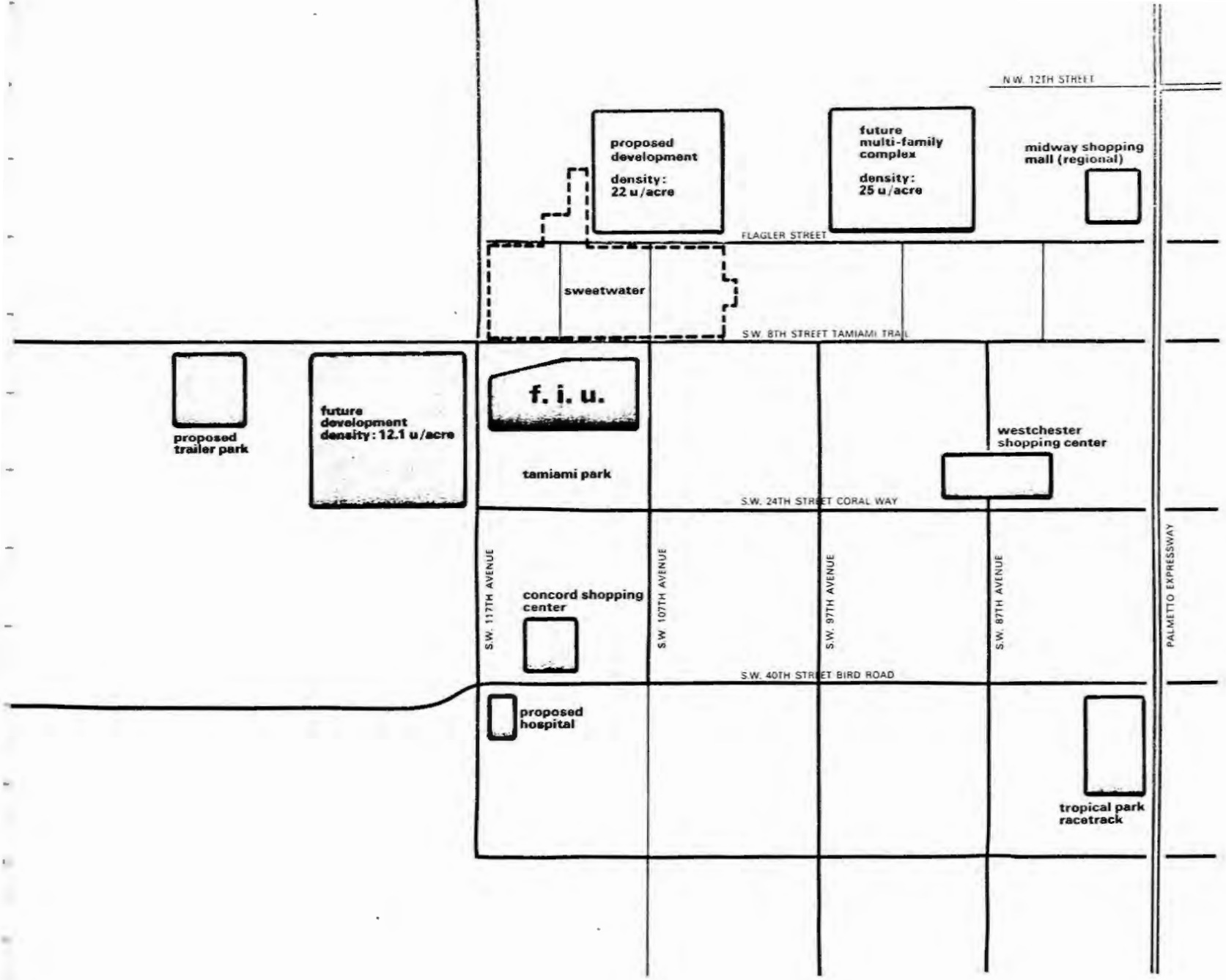

exhibit no. 1

major traffic generators

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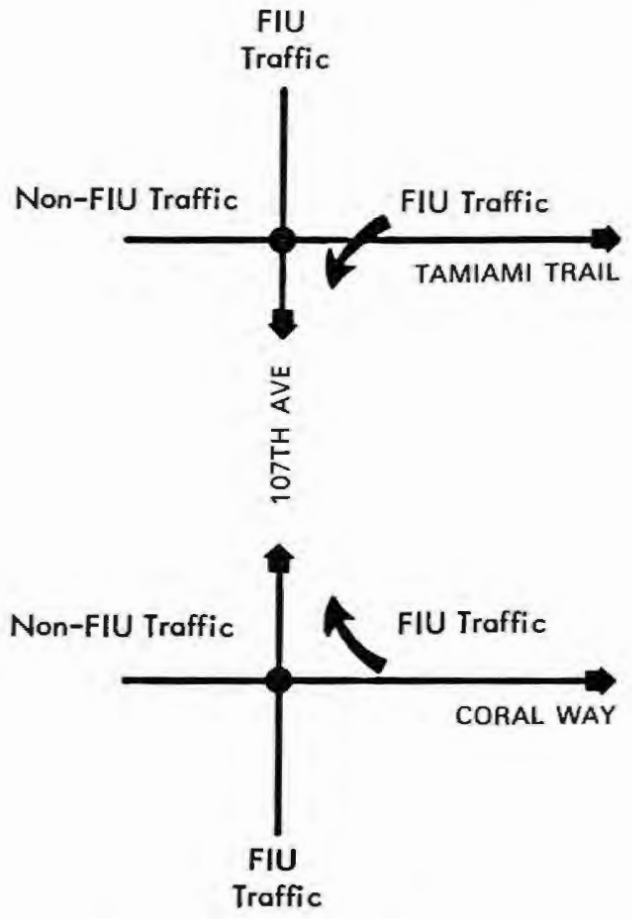
These proposed developments were carefully reviewed to discern any possibilities that unusual conflicts with University traffic might be anticipated. Traffic generated by the shopping centers can be expected to have normal shopping center time-of-day characteristics, and thus will not conflict with peak Florida International University traffic. Likewise, the anticipated new residential development through the next ten years can be expected to generate traffic having an eastbound morning peak which will be complete prior to the Florida International University traffic peak. Traffic from new development immediately west of the University can be expected to use Coral Way and Tamiami Trail eastbound, rather than connecting via S.W. 107th Avenue.

Although some westward shift in population was assumed in estimating the home-end locations of trips to the University, it was not assumed that a large portion of the students would reside in future housing in the immediate vicinity of the University. If such a situation should develop the effect would be to:

1. Increase the number walking or cycling to class.
2. Decrease the number of cars driven to class.
3. Increase the traffic from the west via Tamiami Trail and Coral Way, and from the north via S.W. 107th Avenue.



4. Decrease, by like amount, the traffic from the east via Tamiami Trail and Coral Way.

In view of the capacity analysis, discussed later in this report, such a shift in the home ends of Florida International University traffic would somewhat improve the situation ot the most critical points of congestion during the morning peak.

The proposed hospital on Coral Way could present a problem, adding to the morning westbound University traffic volumes, particularly if the hospital has an 8:00 a.m. shift change. However, the proposed improvements to Coral Way, including ultimate six-laning, will provide adequate capacity.

The arterial improvements in this area which are presently programmed are identified in the next section of this report. The capacities of these facilities, so-improved, will be adequate generally, to carry University traffic as well as non-University traffic. Exceptions to this, or points at which special problems can be anticipated, are discussed in Section D.

- Programmed Arterial Improvements

Discussions have been held with representatives of the Metropolitan Dade County Department of Public Works to determine what arterial street improvements are presently planned ond programmed in the vicinity of the Florida International University site. The following is a summary of this information (item numbers are keyed to locations shown on map, Exhibit 2).

1. West Dade Expressway

This is a State Turnpike project presently under design as a 4-lane, divided toll highway with allowance for future six-laning. The construction schedule shows that it is possible this expressway will be built by 1972 or 1973.

Right of way at Tamiami Trail is to be obtained to allow ultimate construction of a half cloverleaf interchange on the south side of Tamiomi Trail; initial construction is to include only an off-ramp from the south and an on-ramp to the south; i.e., Tamiami Trail traffic to and from the north will not be accommodated. Connections to and from the north will be needed and are called for in the Miami Urban Area Transportation Study adopted by the State and County; however, although strongly advocated by the County, they are not included in present construction or right of way plans. It is not known when the complete interchange might be constructed.

A grade separation at Coral Way will be provided, since it is recognized that Coral Way must be extended

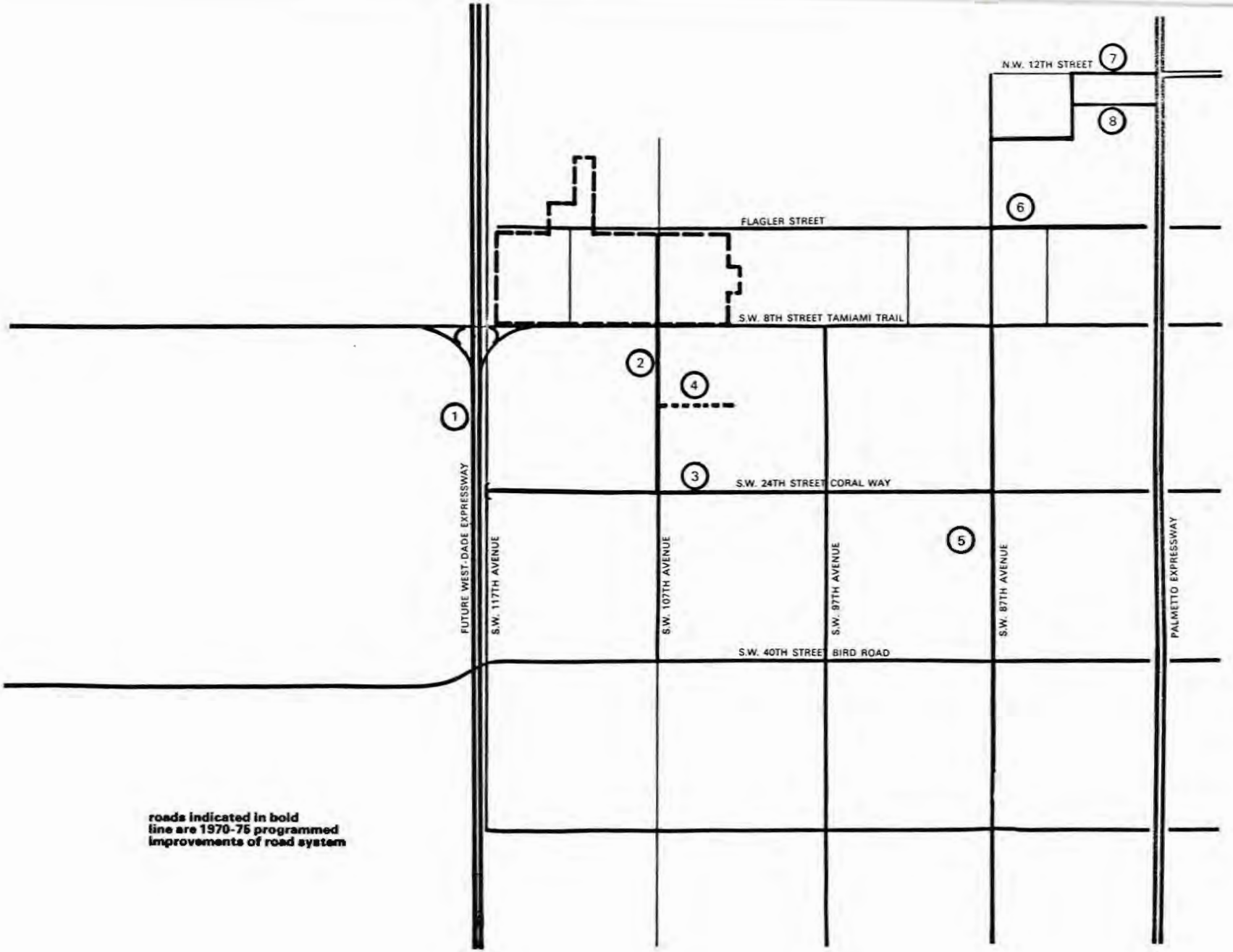


exhibit no. 2

programmed arterial improvements

FLORIDA INTERNATIONAL UNIVERSITY / GREENLEAF • TELESCA PLANNERS ENGINEERS AND ARCHITECTS

westward. It is not yet known whether Coral Way will underpass or overpass the expressway.

2. S.W. 107th Avenue

Largely as a result of the Florida International University development planning, the County has included in its secondary program (adopted by the County Commission on 11 March 1970) substantial improvements to S.W. 107th Avenue.

Preliminary engineering design of the section from Coral Way to Tamiami Trail is scheduled for Fiscal Year 1970-71. Traffic projections, including the Florida International University traffic estimates developed in this study, will be utilized in this design study. Tentatively, it is anticipated that this section will be constructed as a six-lane divided street with special auxiliary storage and turning lanes for Florida International University traffic. Double turning lanes at the Florida International University entrances and at the Tamiami Trail intersection are to be considered. This construction is scheduled for completion prior to the opening of Florida International University.

Construction of an extension of S.W. 107th Avenue from Tamiami Trail to Flagler Street is scheduled for Fiscal Year 1970-71. Although planned for ultimate widening to four lanes, initially a two-lane road will be constructed. The Tamiami Canal Bridge initially will carry only three lanes, but it is to be constructed so as to be easily widened for five lanes in the future.

3. Coral Way

Coral Way from S.W. 87th Avenue to S.W. 117th Avenue is to be four-laned, initially, as the first stage of ultimate six-lane construction. Right of way for this facility is scheduled to be acquired during the Fiscal Year 1970-71. Present schedules call for four-laning construction in 1974-75 and for six-laning in 1975-76; however, if right of way acquisition is completed early in 1971, it is considered probable that construction at least to S.W. 107th Avenue will be scheduled to be completed much earlier —perhaps prior to the opening of the University.

4. S.W. 16th Street

The extension of S.W. 16th Street westward to S.W. 107th Avenue has been considered by the County to accommodate west-oriented traffic generated in the area west of the Palmetto Expressway between Coral Way and Tamiami Trail. However, such extension is not presently in the program.

5. Galloway Road

Reconstruction of Galloway Road from Flagler Street to Tamiami Trail as a four-lane divided facility is scheduled for 1970-71. With this initial construction, the existing four-lane bridge across the Tamiami Canal is to be widened to provide an additional lane for left turn storage, substantially increasing the capacity of the intersection with Tamiami Trail.

Four-laning south to Bird Road is to be completed by 1974 and subsequently Galloway will be four-laned to U.S. 1.

Also programmed for 1970-71 is the extension of Galloway Road northward from Tamiami Trail to N.W. 12th Street. This will be initially constructed as a two-lane road, with provision to ultimately widen to six lanes.

6. Flagler Street

Scheduled with the Galloway Road improvements is the widening of Flagler Street westward to its intersection with Galloway. This is to be the first stage of a future six-lane facility.

7. N.W. 12th Street

Programmed for Fiscal Year 1970-71 is the widening of N.W. 12th Street westward to N.W. 82nd Avenue.

8. East-West Expressway Connections

The Miami Urban Area Transportation Plan calls for the East-West Expressway to be extended west of the West Dade Expressway by 1985. This extension is not presently programmed; programming is partially dependent on a decision as to whether or not Interstate Route 75 will extend from Tampa to connect with this expressway.

In the meantime, consideration is being given to providing a temporary connection from the present terminus to N.W. 82nd Avenue, connecting to Galloway Road via an extension of N.W. 8th Street. These connections are tentatively scheduled for construction in the 1970-71 Fiscal Year.

- Traffic Growth Stages

1. Traffic Estimates

Table 1 shows the projected peak traffic volumes generated by Florida International University beginning with the estimated opening enrollment of 4,250 in the fall of 1972 and through the development to an enrollment of 20,000 anticipated by 1980.

The critical inbound peak thirty-minute period, 7:30 to 8:00 a.m., was designated for use in design. This

was an analytic conclusion based on the assumptions that the characteristics of class attendance and hold-over between classes, by hour, will be similar to those which have been experienced at Dade Junior College, except that class loads and time on campus would be generally greater and fluctuate less. Outbound traffic (leaving the campus) must be considered in design, of course, but it will be less concentrated, occurring after each class throughout the day.

Estimates of total traffic destined to the University were based on other assumptions listed on the attached sheets, the most salient being:

a. Enrollment and staff will consist entirely of off-campus residents.

b. Approximately 5% of the students and staff will reside in nearby neighborhoods and will walk or cycle to class.

c. Approximately 10% will use public transit.

d. All others will use automobiles at the occupancy rate of 1.2 persons per car.

Distribution of traffic by direction was estimated on the basis of assumptions that homes of students will be distributed geographically in a pattern similar to that of Dade Junior College student residences, except that anticipated westward expansion and new residential development near the University were allowed for.

A revised rational assignment of the projected peak traffic was made to the arterial "funnels" leading to the University. In making this assignment it was assumed that:

a. The programmed arterial improvements (see Figure 2) will be completed as scheduled.

b. The tolls on the West Dade Expressway will be such as to discourage its use by all but a negligible portion of Florida International University traffic.

The results are shown in Table 1, listed for each approach facility and direction, through the development period.

2. Capacity Analysis

In accordance with the limitations of purpose and scope of this study, no attempt is made to recommend specific design features which will be required to meet the capacity demands of the projected Florida International University traffic combined with other traffic.

Table 1

FLORIDA INTERNATIONAL UNIVERSITY PROJECTED TRAFFIC

		Peak Traffic (Arriving 7:30-8:00 A.M.)							
Year	Enrollment	Total	From Trail, E.	From 107th, N.	From Trail, W.	From Corol, E.	From 107th, S.	From 117th, S.	From Coral, W.
1972	4,250	640	340	60	0	170	60	10	0
1974	8,130	1,210	600	150	0	300	120	30	10
1976	12,050	1,770	860	220	10	430	190	40	20
1978	16,010	2,340	1,140	280	20	550	260	60	30
1980	20,000	2,900	1,380	340	30	670	330	110	40

However, the arterial street system leading to the University was examined, and the critical points at which Florida International University peak traffic will encounter maximum congestion were identified and subjected to o capacity analysis. Traffic increases through the development stages were considered. The results are summarized below.

a. General Accessibility

With the exception of Tamiami Trail, the present arterial facilities in the vicinity of and leading to the Florida International University site would be woefully inadequate and would be unable to meet demands of the estimated 1972 peak traffic. However, the substantial improvement of S.W. 107th Avenue and its intersections at Tamiami Trail, Coral Way, and at the Florida International University entrances, programmed and scheduled for completion prior to the opening of the University, will pravide adequate capacity at these critical locations.

The four-laning of Caral Way east fram S.W. 107th Avenue, hopefully by 1972, will also be most helpful in precluding severe congestion in the first year. This street, along with Tamiami Trail and Flagler Street (connecting via the proposed S.W. 107th Avenue extension), all af which interchange with the Palmetto Expressway, will provide adequate general accessibility from the southeast, east and north throughout the period of projected growth. Other improvements, such as the four-laning and extension of Galloway Road and its connections with N.W. 12th Street and the East-West Expressway, will further improve the flexibility of route choice, traffic characteristically adjusting as it seeks routes of least friction.

As the University grows and as westward residential development occurs, improvement of arterials to the south and west will be needed. This would include the extension of Coral Way to the west, as already committed, and resurfacing and widening of S.W. 107th Avenue from the University south will be needed by 1972.

The initial impact which Florida International University traffic will have on the arterial streets leading to it has been given appropriate and timely consideration by the County. The Secondary Road Program far 1970-71 adopted by the County Commission on 11 March 1970 includes the improvements necessesary to accommodate Florida International University traffic thraugh its first years of growth. Much credit should go to the County, and to the University officials who have communicated with them regarding their plans, for bringing about this action.

As with the development of any major traffic generator, beyond the initial impact date, growth in the traffic which this particular generator imposes on the arterial system is accounted for along with all other

traffic increases. As the increases occur and create traffic problems and congestion, traffic engineering and roadway improvement measures will be taken by the County and/or the State to appropriately alleviate them. It is unreasonable to expect that streets leading to the University will be improved so as to have less congestion than most other streets. On the other hand, it is entirely reasonable to expect that the County will continuously take appropriate measures to assure that congestion on these streets will be no more severe than it is on most other streets in the Miami urban area.

b. Major Intersection Problems

The capacity analysis revealed that the major traffic problems will be encountered during the morning peak at four points, all along S.W. 107th Avenue, at its intersections with Tamiami Trail and Coral Way and at the University entrances. For the purpose of this analysis it was assumed that two entrances to the campus would be located on S.W. 107th Avenue. It is also assumed (and recommended) that at least one entrance directly from S.W. 117th Avenue will be provided.

Projections indicate that the Coral Way westbound approach to S.W. 107th Avenue will require provision for dual right turns in the latter part of the projection period, possibly by 1977.

At the southernmost entrance to the campus on S.W. 107th Avenue provision for dual left turns should be anticipated before the midpoint of the growth period, possibly by 1975.

At the northernmost S.W. 107th Avenue entrance dual right turns into the campus may be required as early as the second year of growth.

Assuming little, if any usage of, or diversion to, the West Dade Expressway, the Florida International University peak traffic which will pass through the intersection of Tamiami Trail and S.W. 107th Avenue will require special consideration in the middle and latter years of the projection period. Dual left turn provisions will be needed prior to the second year of Florida International University operation. By the time enrollment reaches 10,000 further relief, perhaps in the form of an entrance directly from Tamiami Trail at S.W. 109th Avenue, will be needed. As enrollment approaches 18,000 the morning peak Florida International University traffic will require some further accommodation, such as a grade-separated left turn ramp.

Again, these projected demands are based upon the aforestated assumptions, including that regarding prohibitive tolls on the West Dade Expressway. Should it become attractive for an appreciable number of staff and students to use this expressway, congestion at Tamiami Trail - S.W. 107th Avenue intersection

would be relieved, ond a direct off-ramp into the University (e.g. the direct connection into Tropical Park Race Track) would be in order.

- Conclusions

1. As indicated in the preliminary investigation, this study has further supported the conclusion that, if presently programmed arterial improvements in the vicinity of the Florida International University site are designed on the basis of traffic as estimated herein and are completed on schedule, the traffic peaks in the initial year of operation will be adequately accommodated.

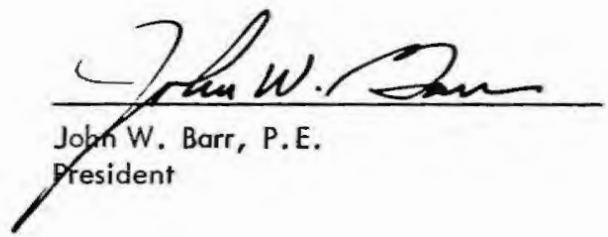
2. Considering present County and State attitudes and policies, and in view of the general nature of the further arterial improvements which will be needed, it is entirely reasonable to assume that the County and State will be able to satisfactorily cope with the problems of traffic growth in the University vicinity.

3. General Conclusion: While it would be unrealistic to suggest that there will be no traffic problems in the vicinity of the University, there is every reason to believe that congestion will be no more severe than it is in most parts of the Miami area. It is a definite conclusion of this study that accessibility and external arterial capacity are not factors which will limit the growth of the University as projected thraugh 1980.

It should be recognized, in closing, that the attitude and consideration shown by the County to properly anticipate and accommodate Florida International University traffic, has been excellent. Not only has this been demonstrated by the cooperation of County staff, but even more importantly, it is proved by the programming and scheduling actions already taken. The policy of continuing communication between the University and the County should be carefully maintained. As further facts and planning information become available (e.g. findings of a study of actual traffic generation after the opening of the University), they should be conveyed to the County so that related arterial programming may be kept current.

Respectfully submitted,

BARR, DUNLOP & ASSOCIATES, INC.



John W. Barr, P.E.
President

section two

University Based Assumptions which Affect Traffic

- There will be no housing quarters on campus for students, faculty, or other employees.

- The availability of student housing near the campus will allow 5% of the students to walk or cycle to school.

- The level of public transit service will conform to the kind and level of service currently available to the North Dade Campus resulting in a 10% use of this facility.

- Vehicle occupancy rates for university generated traffic will be as follows:

  Faculty Members 1.0

  Non-Academic Staff Members and Students 1.2

- Two thirds of the 7:00 a.m. students will attend both the 7:00 and 8:00 a.m. classes.

- The projected scheduling of classes and students in classes at Florida International University will approximate the pattern existing at the North Campus of Miami-Dade Junior College.

- The number of teaching faculty on the grounds at 7:00 and 8:00 a.m. will conform to the number of students in class expanded by 5% to allow the performance of duties other than pure classroom functions.

- The work hours of all employees other than instructional faculty will be as follows:

1. 12:30 a.m. - 7:30 a.m.
   25% of all physical plant

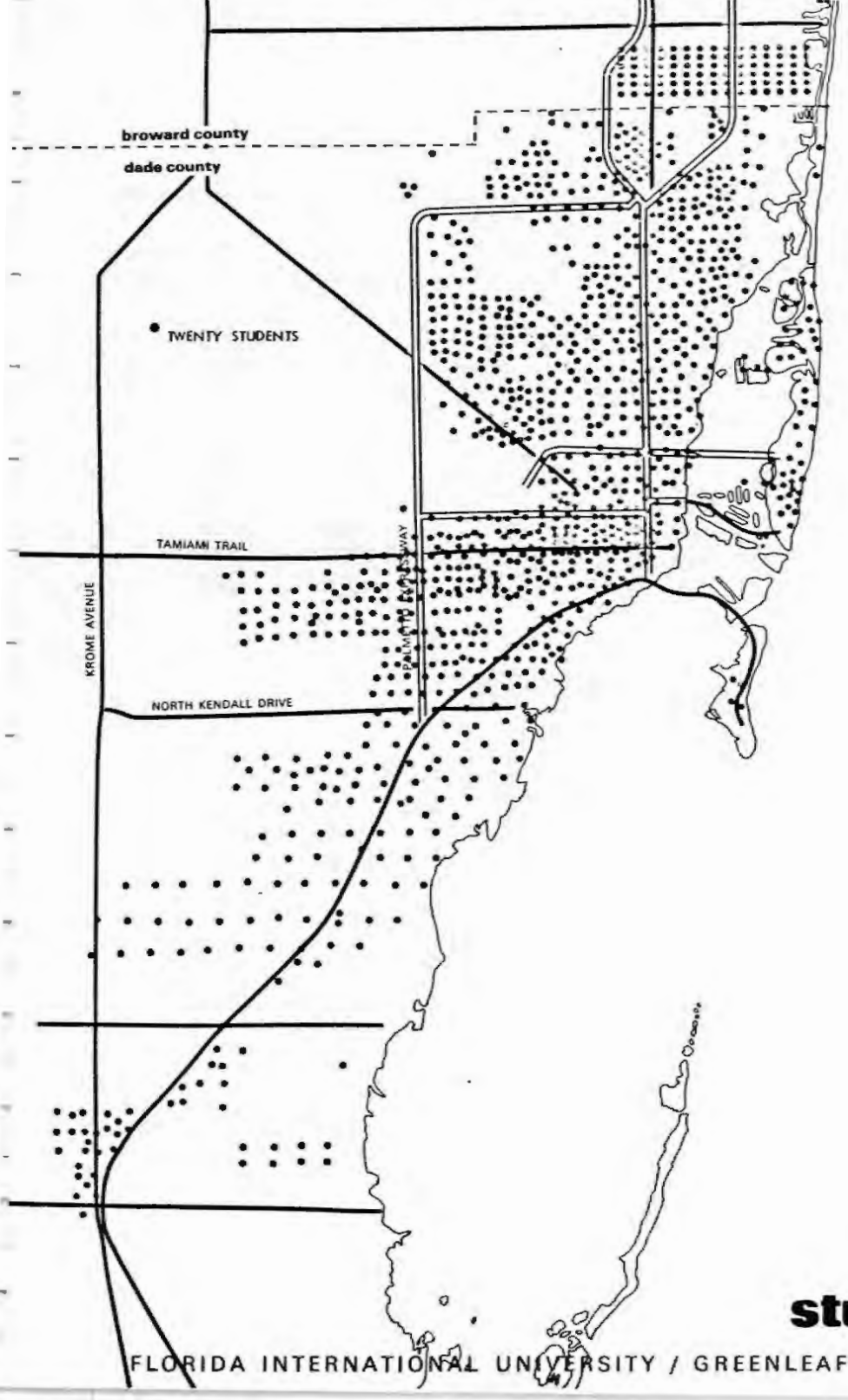
2. 4:30 p.m. or 5:00 p.m. - 12:30 a.m.
   25% of all physical plant
   40% of all library
   50% of all computer
   10% of academic administration

3. Days

a. 7:30 a.m. - 4:30 p.m.
   50% of physical plant

b. 8:30 a.m. - 5:00 p.m.
   50% of the remainder

c. 8:00 a.m. - 5:00 p.m.
   The remainder



section three

0 2 4 6 8 10 miles

student population distribution

FLORIDA INTERNATIONAL UNIVERSITY / GREENLEAF • TELESCA PLANNERS ENGINEERS AND ARCHITECTS

UNIVERSITY GENERATED AUTOMOTIVE TRAFFIC ARRIVING AT FLORIDA INTERNATIONAL UNIVERSITY AT 7:30-8:00 A.M.

	STUDENTS				EMPLOYEES INSTRUCTORS				OTHER THAN INSTRUCTORS	
						On Campus				
Year	Enrollment Total	In Class 8-9 a.m.	Minus 2/3 (7-8 a.m.) Class	Equals Total Arriving at 7:30-8:00 a.m.	FTE Total	8-9 a.m.	Minus (7-8 a.m.)	Arriving at 7:30-8:00 a.m.	Total	Arriving 7:30-8:00 a.m.
1972-73	4,250	1,088	382	706	219	59	31	28	415	136
1973-74	6,190	1,585	557	1,028	322	86	46	40	550	189
1974-75	8,130	2,081	732	1,349	425	114	60	54	691	237
1976-77	12,050	3,085	1,084	2,001	633	170	90	80	958	328
1978-79	16,010	4,099	1,441	2,658	838	225	119	106	1,238	419
1980-81	20,000	5,120	1,800	3,320	1,045	281	148	133	1,485	504

FLORIDA INTERNATIONAL POPULATION AND THEIR PERSONAL AUTOMOBILES ARRIVING AT 7:30-8:00 A.M.

	Student		Instructors		Other Employees		F.I.U. Population	
Year	Total	Autos	Total	Autos	Total	Autos	Total	Autos
1972-73	706	500	28	28	136	112	870	640
1973-74	1,028	728	40	40	189	158	1,257	926
1974-75	1,349	956	54	54	237	197	1,740	1,207
1976-77	2,001	1,417	80	80	328	273	2,409	1,770
1978-79	2,658	1,882	106	106	419	349	3,183	2,337
1980-81	3,320	2,352	133	133	504	420	3,957	2,905

Sources: Office of the Florida Board of Regents
Planning Staff of Florida International University

FLORIDA INTERNATIONAL UNIVERSITY

UNIVERSITY GENERATED TRAFFIC BY APPROACH CORRIDOR - 7:30-8:00 A. M.

PERSONAL AUTOMOBILES

Year	Total	Trail East of FIU	177th Ave. Via Trail	Coral Way	Palmetto East-West
			WITHOUT USE OF TOLLWAY		
1972-73	640	6	5	238	390
1973-74	926	9	8	345	564
1974-75	1,207	12	11	445	739
1976-77	1,771	19	18	662	1,071
1978-79	2,338	26	26	877	1,410
1980-81	2,905	32	32	1,066	1,772

FLORIDA INTERNATIONAL UNIVERSITY

MAXIMUM PARKING SPACES REQUIRED (AT MORNING PEAK PERIOD)

1972-73	1973-74	1974-75	1975-76		1976-77	1977-78	1978-79	1979-80	1980-81
2,100	2,983	3,908	4,435	Student	5,152	5,763	6,244	6,786	7,367
164	241	319	400	Instructor	475	548	629	707	784
272	370	466	474	Other Day Employees	648	707	836	926	1,011
50	73	95	115	Visitor @ 2 1/2%	139	161	184	207	229
2,586	3,667	4,788	5,424	Total	6,414	7,179	7,893	8,626	9,391
129	183	239	271	Allowance for Friction @ 5%	321	359			470
2,715	3,850	5,027	5,695	Total Parking Spaces Required	6,735	7,538	8,288	9,057	9,861

PART FOUR

population and student enrollments

POPULATION AND STUDENT ENROLLMENTS

A study was conducted by the Greenleaf/Telesca staff to examine some of the factors that will influence student enrollments at Florida International University, including: total population growth, high school and junior college enrollments, percentage of high school and junior college graduates who continued or intended to continue their studies beyond graduatian, and percentages of junior college graduates planning to attend various higher education facilities both in Florida and elsewhere. The area examined included Dade and Broward Counties.

The information examined is summarized below; Tables One to Ten are presented following the summary. These studies taken together indicate a continuing strengthening of demand for upper-level education in the area examined.

- Table One

Total population for Dade and Broward Counties was estimated as 1,287,380 in 1960; 1,960,000 in 1970; and 2,746,000 in 1980. Numerical and percentage increases are expected to decline toward the end of the seventies from the highs set in the latter half of the sixties.

- Tables Two and Three

Public high school (Grades 10-12) enrollments in Dade and Broward Counties were 35,666 in 1960; 55,143 in 1965; 71,740 in 1970; and projected to 94,733 in 1975. The increases projected for 1970-75 are higher than during any other five-year period since 1960, assuring a strengthening of demand for the juniar college systems.

- Tables Four and Five

The percentage of high school graduates during the years 1964-68 who enrolled in some form of continuing education program increased from 56.3% to 66.8% in Broward County, and from 65.9% to 73.3% in Dade County. The information contained on Tables Two, Three, Four, and Five suggests that a higher percentage of an increasing number of high school graduates in Dade and Broward Counties will continue their education after graduation.

- Tables Six and Seven

Total credit students enrolled in Dade and Broward Junior Colleges increased from 18,509 in 1965 to 32,261 in 1969. The projected total for the yeor 1978 is 60,810, almost a doubling of the 1969 total.

- Table Eight

During the period 1960-69 the number af Dade County

high school graduates almost doubled, while at the same time first time in college credit enrollments in junior college more than quadrupled, and total credit enrollments increased by a factor of eight. During the same period, first time in college as a percent of high school graduates increased from 26% to 63%.

- Table Nine

A considerable number of students attending junior college in Dade and Broward Counties are from families with modest incomes. If such students are to continue at Florida International University, work-study and/or scholarship programs will be required.

- Table Ten

A sample of Miami-Dade Junior College graduates in 1967 showed that 82% intended to continue their education, all but 7% within the state of Florida. A survey of all Broward Junior College students taken in 1969 showed that 73% expected to continue their education after graduation from junior college, all but 12% within the state of Florida. In both counties approximately 50% of those surveyed planned to continue at a university within the state system; this figure would almost certainly have been higher had Florida International University been in operation at the time of the survey.

TABLE ONE

POPULATION

ESTIMATED In Thousands					PROJECTED In Thousands				
County		As of	State of		County			State of*	
Dade	Broward	June 30	Florida	U.S.A.	Dade	Broward	Year	Florida **	U.S.A.*
910	306	1959		175,277	1,290	670	1970	6,528	204,923
944	343	1960	4,999	180,007	1,486	875	1975	7,275	215,367
991	363	1961	5,205	183,756	1,706	1,040	1980	8,105	227,665
1,057	382	1962	5,392	186,656	1,955	1,150	1985	9,012	241,731
1,081	400	1963	5,531	189,417					
1,094	424	1964	5,650	192,120					
1,114	452	1965	5,805	194,592					
1,145	488	1966	5,945	196,907					
1,182	520	1967	6,083	199,114					
1,219	564	1968	6,210	201,152					
1,260	615	1969	6,354	203,216					

*U.S. Bureau of Census Natural Increase Assumption D.

**Migration Assumption II that migration rate will change from recent levels so as to result in no net migration among states in 50 years.

Sources: Metropolitan Dade County Planning Department
Broward County Area Planning Board
Bureau of Economic & Business Research, College of Business Administration, University of Florida
Population Reports Series P. 25, Bureau of the Census

DADE COUNTY PUBLIC SCHOOLS

1ST MONTH PUPIL MEMBERSHIP
GRADUATES END OF SCHOOL YEAR

ACTUAL

1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	Grade	1965-66	1966-67	1967-68	1968-69	1969-70
154,359	163,657	175,000	190,014	193,674	196,646	Total	201,543	208,410	217,386	224,297	232,157
16,910	17,756	18,822	20,235	19,920	19,653	1	19,802	19,654	19,942	19,960	20,341
15,892	16,612	17,560	18,038	18,576	18,695	2	18,514	18,907	19,423	19,600	20,144
15,695	15,764	16,549	18,553	18,562	19,153	3	19,733	19,623	20,302	20,971	21,589
14,266	15,641	16,192	17,379	17,500	17,440	4	18,271	19,170	19,079	19,599	20,154
13,592	14,374	15,821	16,727	16,768	17,100	5	17,422	18,529	19,721	19,587	20,176
13,234	13,619	14,581	16,338	16,148	16,442	6	17,025	17,634	18,923	20,079	20,141
14,592	14,856	15,545	16,870	17,554	17,312	7	17,553	18,377	19,023	20,027	21,043
12,537	13,892	14,328	15,235	15,468	16,549	8	16,335	17,201	18,269	18,805	19,970
10,449	12,320	13,990	14,874	14,776	15,080	9	16,412	16,734	17,576	18,429	19,472
10,248	10,474	12,569	14,585	14,672	14,802	10	15,223	16,615	17,485	18,271	19,124
9,312	9,704	9,995	11,951	12,986	13,201	11	13,487	13,902	15,287	15,632	16,367
7,148	8,021	8,407	8,688	10,253	11,309	12	11,566	12,006	12,356	13,337	13,636
(6,765)	(7,524)	(7,787)	(8,041)	(9,721)	(10,806)	(Graduates)	(11,058)	(11,411)	(11,895)	(12,734)	

PROJECTED

1970-71	1971-72	1972-73	Grade	1973-74	1974-75
239,000	244,300	248,700	Total	251,800	254,300
20,000	19,000	18,900	1	18,600	19,000
20,500	20,200	19,200	2	19,100	18,800
22,200	22,600	22,300	3	21,300	21,200
20,700	21,300	21,700	4	21,400	20,400
20,700	21,300	21,900	5	22,300	22,000
20,700	21,300	21,900	6	22,500	22,900
21,100	21,600	22,200	7	22,800	23,400
21,000	21,100	21,600	8	22,200	22,800
20,500	21,500	21,600	9	22,100	22,700
20,100	21,100	22,100	10	22,200	22,700
17,200	18,200	19,200	11	20,200	20,300
14,300	15,100	16,100	12	17,100	18,100

Source: Department of Administrative Research, Dade County Public Schools

BROWARD COUNTY PUBLIC SCHOOLS

1ST MONTH PUPIL MEMBERSHIP

ACTUAL

1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	Grade	1965-66	1966-67	1967-68	1968-69	1969-70
55,778	62,347	66,533	71,289	76,046	80,917	Total	85,482	89,631	95,459	102,095	110,803
6,255	7,012	7,205	7,565	7,990	8,199	1	8,727	8,678	8,912	9,121	9,826
5,991	6,370	6,682	6,864	7,179	7,597	2	7,868	8,364	8,716	9,473	9,715
5,667	6,263	6,409	6,824	6,967	7,413	3	7,815	8,056	8,794	9,423	10,016
5,220	6,021	6,340	6,443	6,970	7,230	4	7,715	8,117	8,607	9,326	9,917
5,124	5,551	6,063	6,540	6,646	7,230	5	7,466	7,993	8,514	8,980	10,072
5,004	5,498	5,752	6,233	6,645	6,927	6	7,498	7,681	8,412	9,029	9,626
5,334	5,450	5,997	6,316	6,885	7,290	7	7,516	8,032	8,483	9,714	9,876
4,427	5,462	5,610	5,971	6,175	6,926	8	7,312	7,501	8,056	8,718	9,420
3,798	4,586	5,451	5,513	5,985	6,274	9	6,945	7,300	7,637	8,381	9,171
3,412	3,885	4,600	5,477	5,567	5,831	10	6,301	7,148	7,645	7,971	8,871
3,066	3,201	3,536	4,293	5,138	5,236	11	5,549	5,790	6,509	7,032	7,476
2,480	2,828	2,888	3,250	3,898	4,764	12	4,773	4,971	5,174	5,827	6,266
(2,299)	(2,624)	(2,624)	(2,917)	(3,586)	(4,307)	(Graduates*)	(4,648)	(4,522)	(4,718)	(5,219)	

*Not included are adults who complete high school or those who obtain their diploma via examination. These two groups represent 3,045 graduates for this period.

PROJECTED**

1970-71	1971-72	1972-73	Grade	1973-74	1974-75
118,810	127,637	136,818	Total	146,403	156,565
10,543	11,282	12,074	1	12,913	13,800
10,475	11,208	11,995	2	12,828	13,722
10,395	11,177	11,960	3	12,792	13,683
10,775	11,102	11,939	4	12,767	13,645
10,641	11,530	11,881	5	12,768	13,643
10,767	11,344	12,293	6	12,658	13,606
10,502	11,715	12,346	7	13,381	13,781
10,192	10,816	12,068	8	12,709	13,777
9,882	10,661	11,315	9	12,616	13,275
9,675	10,396	11,217	10	11,896	13,254
8,294	9,026	9,699	11	10,455	11,088
6,669	7,380	8,031	12	8,620	9,291

SOURCE: BROWARD COUNTY BOARD OF PUBLIC INSTRUCTION

**Projections based on a gradual decrease of 1969-70 cohort percentages giving annual increase in total 1-12 enrollment of 9,254 per year which was intermediate between annual cohort computed on 1969-70 increases over prior year showing total average change of 10,112 per year and annual cohort based on 3-year average change which developed average increase of 7,687.

D A D E C O U N T Y

FALL MATRICULATIONS OF SPRING HIGH SCHOOL GRADUATES

S C H O O L S PUBLIC 1	PRIVATE 9	ALL 6	PERCENTAGE OF TOTAL 8	TOTAL HIGH SCHOOL GRADUATES		S C H O O L S PUBLIC 1	PRIVATE 9	ALL 6	PERCENTAGE OF TOTAL 7
11,606	1,303	12,909	100.0%			10,893	1,048	11,941	100.0%
4,860	502	5,362	41.5%	Junior	Public	4,407	405	4,812	40.3%
37	24	61	.5%	College	Private	16	39	55	.5%
1,001	139	1,140	8.8%	Sr. College	Public	979	87	1,066	8.9%
516	126	642	5.0%	or University	Private	337	134	471	3.9%
1,306	288	1,594	12.3%	Colleges	Out of State	1,226	210	1,436	12.0%
568	48	616	4.8%	Technical	In Florida	476	15	491	4.1%
34	14	48	.4%	Trade, etc. Sch.	Out of State	77	2	79	.7%
1	9	6	6			1	9	6	5
11,089	1,033	12,122	100.0%			10,651	1,039	11,690	100.0%
4,115	367	4,482	37.0%	Junior	Public	3,165	330	3,495	29.9%
12	34	46	.4%	College	Private	19	35	54	.5%
1,150	88	1,238	10.2%	Sr. College	Public	1,270	82	1,352	11.6%
300	123	423	3.5%	or University	Private	388	121	509	4.4%
1,177	221	1,398	11.5%	Colleges	Out of State	1,237	288	1,525	13.0%
572	41	613	5.1%	Technical	In Florida	644	35	679	5.8%
66	4	70	.6%	Trade, etc. Sch.	Out of State	27	4	31	.3%
1	9	6	4						
9,446	939	10,385	100.0%						
2,601	245	2,846	27.4%	Junior	Public				
4	33	37	.4%	College	Private				
1,277	81	1,358	13.1%	Sr. College	Public				
489	126	615	5.9%	or University	Private				
1,127	231	1,358	13.1%	Colleges	Out of State				
553	55	608	5.9%	Technical	In Florida				
4	6	10	.1%	Trade, etc. Sch.	Out of State				

SOURCE: Research Reports Nos. 45, 53, 63, 72
Florida Department of Education

BROWARD COUNTY

FALL MATRICULATIONS OF SPRING HIGH SCHOOL GRADUATES

SCHOOLS PUBLIC 1	PRIVATE 9	ALL 6	PERCENTAGE OF TOTAL 8	TOTAL HIGH SCHOOL GRADUATES		SCHOOLS PUBLIC 1	PRIVATE 9	ALL 6	PERCENTAGE OF TOTAL 7
4,833	619	5,452	100.0%			4,705	512	5,217	100.0%
1,647	234	1,881	34.5%	Junior	Public	1,612	188	1,800	34.5%
15	12	27	.5%	College	Private	3	5	8	.2%
412	66	478	8.8%	Sr. College	Public	501	35	536	10.3%
230	60	290	5.3%	or University	Private	162	39	201	3.9%
600	152	752	13.8%	Colleges	Out of State	456	157	613	11.8%
158	14	172	3.2%	Technical	In Florida	163	23	186	3.6%
37	2	39	.7%	Trade, etc. Sch.	Out of State	19	10	29	.6%
1	9	6	6			1	9	6	5
4,538	521	5,059	100.0%			4,373	538	4,911	100.0%
1,523	164	1,687	33.3%	Junior	Public	1,423	195	1,618	32.9%
17	12	29	.6%	College	Private	4	4	8	.2%
404	36	440	8.7%	Sr. College	Public	407	58	465	9.5%
148	44	192	3.8%	or University	Private	150	54	204	4.2%
492	128	620	12.3%	Colleges	Out of State	418	121	539	11.0%
206	18	224	4.4%	Technical	in Florida	208	9	217	4.4%
42	5	47	.9%	Trade, etc. Sch.	Out of State	32	0	32	.7%
1	9	6	4						
3,697	382	4,079	100.0%						
959	59	1,018	25.0%	Junior	Public				
8	5	13	.3%	College	Private				
377	60	437	10.7%	Sr. College	Public				
138	40	178	4.4%	or University	Private				
357	117	474	11.6%	Colleges	Out of State				
135	17	175	4.3%	Technical	in Florida				
23				Trade, etc. Sch.	Out of State				

SOURCE: Research Reports Nos. 45, 53, 63, 72
Florida Department of Education

MIAMI DADE JUNIOR COLLEGE

NORTH DADE CAMPUS ENROLLMENT

STUDENTS			Academic	SOUTH DADE CAMPUS ENROLLMENT (Opened 1965-66) STUDENTS		
Total	Non-Credit	Credit	Year	Credit	Non-Credit	Total
15,039	2,102	12,937	1965-66	1,576	366	1,942
16,440	2,044	14,396	1966-67	4,135	358	4,493
16,372	1,272	15,100	1967-68	6,561	408	6,969
17,503	1,521	15,982	1968-69	8,116	730	8,846
18,216	1,762	16,452	1969-70	9,917	1,242	11,159

PROJECTIONS OF FALL TERM CREDIT STUDENT ENROLLMENT - ALL CAMPUSES

Year	DCPHS Graduates	MDJC Credit Students	Annual % Increase
1970-71	13,150	28,400	7.7
1971-72	14,000	30,270	6.6
1972-73	14,800	32,000	5.7
1973-74	15,400	33,300	4.1
1974-75	16,500	35,680	7.1
1975-76	17,800	38,490	7.9
1976-77	18,000	38,920	1.1
1977-78	18,500	40,000	2.8
1978-79	19,200	41,520	3.8
1979-80	19,500	42,160	1.5
1980-81	19,500	42,160	0.0

Based on the projected number of Dade County Public High School (DCPHS) graduates and the following assumptions:

(1) That for every 100 DCPHS graduates of the year before, there will be approximately 64 entering freshmen at MDJC.

(2) That there will be approximately 1,000 credit students at MDJC for every 296 entering freshmen.

Source: Office of Institutional Research - Miami-Dade Junior College

BROWARD JUNIOR COLLEGE
ENROLLMENT AND GRADUATES - 1960 - 1969

STUDENTS						GRADUATES			
TOTAL	Non-Credit	CREDIT ALL	CREDIT FTE	CREDIT FTIC	ACADEMIC YEAR	Associate of Arts	Associate of Science	Certificates Others	TOTAL
687	0	687			1960-1961				0
1388	0	1388			1961-1962	29	29		58
1961	0	1961			1962-1963	34	85		119
2450	0	2450			1963-1964	49	118		167
3268	281	2987	2602	788	1964-1965	64	186		250
4569	573	3996	3378	1785	1965-1966	107	252		359
5429	268	4961	4138	1618	1966-1967	114	365	20	499
4536	23	4513	3579	1340	1967-1968	224	485	23	732
4883	6	4877	3902	1396	1968-1969	490	214	22	726
5915	23	5892	4479	2105	1969-1970				
					TOTAL	1111	1734	65	2910

PROJECTIONS OF ENROLLMENT IN BROWARD COUNTY - FULL-TIME EQUIVALENT

YEAR	BCPHS Graduates	BCJC CREDIT STUDENTS FTIC	Total	% Increase
1969-70	5412	1678	4794	
1970-71	5791	2027	5961	24.3%
1971-72	6056	2422	7339	23.1%
1972-73	6503	2926	9143	24.6%
1973-74	6868	3571	11519	26.0%
1974-75	7522	4062	13540	17.5%
1975-76	7972	4464	14880	9.9%
1976-77	8443	4897	16323	9.7%
1977-78	9240	5452	18173	11.3%
1978-79	9645	5787	19290	5.8%

Glossary of Abbreviations:

FTE = Full Time Equivolent
FTIC = First Time In College
BCPHS = Broward Cty. Public School Graduates
BCJC = Broward County Junior College

Source: Registrar's Office - Broward Junior College
"Broward Junior College Ten-Year Plan for Development", Rothrock, Reynolds & Reynolds

CORRELATION BETWEEN NUMBERS OF HIGH SCHOOL GRADUATES AND JUNIOR COLLEGE ENROLLMENTS IN DADE COUNTY

High School Graduates			CREDIT STUDENTS			
	2-Year		First Time in College		Total	
Number	Running Total	Year (1)	Number	% (2)	Number	% (3)
6,765		1960				
7,524	14,289	1961	1,956	26.0	3,341	23.4
7,787	15,311	1962	2,710	34.8	5,735	37.5
8,041	15,828	1963	2,849	35.4	7,965	50.3
9,721	17,762	1964	4,131	42.4	10,822	60.9
10,806	20,527	1965	5,385	49.8	14,513	70.7
11,058	21,864	1966	6,631	60.0	18,531	84.8
11,411	22,469	1967	7,435	65.2 (4)	21,661	96.4
11,895	23,306	1968	7,784	65.4 (4)	24,098	103.4
12,734	24,629	1969	8,212	64.5 (4)	26,361	107.0

(1) Graduates as of spring or summer.
Credit students as of fall term.

(2) First time in college as a percentage of high school graduates.

(3) Total as a percentage of 2-year running total.

(4) If Broward County residents eliminated, adjusted figures are:

63.3% for 1967
63.1% for 1968
62.6% for 1969

Source: Administrative Research - Dade County Public Schools
Office of Institutional Research - Miami-Dade Junior College

TABLE NINE

FAMILY INCOME DISTRIBUTION

FALL TERM 1967
For a Sampling of Students Attending
FLORIDA PUBLIC COLLEGES AND UNIVERSITIES

Institution	No. of Students in Sample	Family Incomes % in Each Class: 0-2,999	3,000-4,999	5,000-6,999	7,000-9,999	10,000-14,999	15,000-19,999	More than 19,999
Universities								
Florida A & M	929	29.3	30.5	20.3	10.4	5.7	2.9	0.9
Florida Atlantic	1,283	6.2	13.6	25.3	25.5	17.7	6.5	5.2
Florida State	2,210	3.2	9.3	15.7	25.2	27.2	11.1	8.4
University of Florida	3,924	3.4	7.8	14.2	23.1	27.0	13.9	10.6
University of South Florida	2,795	4.4	11.5	18.8	24.5	25.4	9.4	6.0
University of West Florida	831	9.2	16.8	20.6	21.6	22.0	5.9	4.0
All Florida Universities	11,972	6.3	12.0	17.7	23.0	23.6	10.1	7.3
Junior Colleges								
Broward	641	4.0	10.0	23.4	27.9	24.6	6.2	3.8
Miami-Dade North	3,899	9.3	14.9	19.9	23.3	18.9	6.8	6.9
Miami-Dade South	1,471	3.5	8.9	16.3	23.6	25.5	12.0	10.2
Palm Beach	1,211	3.8	11.2	21.7	26.6	24.8	8.9	2.9
All Florida Jr. Colleges	19,318	6.3	12.7	21.2	24.3	22.8	7.8	4.9
Total Sample	31,290	6.3	12.4	19.8	23.8	23.1	8.7	5.8

Source: Board of Regents Survey and Government Research Bulletin
Florida State University Government Research Bulletin Vol. VI #4, September 1969

TABLE TEN

UPPER DIVISION EDUCATION OF JUNIOR COLLEGE GRADUATES

College of Choice	Daytona Beach Junior College (1) Graduates Number Attending	% of Total	Miami-Dade Junior College (2) Graduates Number Attending	% of Total	Broward Junior College (3) Fall 1969-70 Total Enrollment Intentions	% of Total
State System	396	52.2	645	47.2	3,093	52.5
Florida A & M	1	0.1			37	0.6
Florida Atlantic University	31	4.1	221	16.2	2,016	34.2
Florida State University	124	16.3	168	12.3	382	6.5
University of Florida	197	26.0	200	14.6	523	8.9
University of South Florida	43	5.7	35	2.6	98	1.7
University of West Florida			21	1.5	37	0.6
Junior College			75	5.5		
Private - Florida	43	5.7	251	18.4	504	8.6
Barry			17	1.2	21	0.4
Bethune-Cookman	5	0.7	1	0.1	7	0.1
Biscayne			2	0.1	2	0.0
Embry-Riddle	2	0.3				
Florida Memorial			1	0.1	17	0.3
Florida Presby					5	0.1
Florida Southern			1	0.1	33	0.6
Jacksonville	4	0.5			9	0.2
New College					5	0.1
Nova					18	0.3
Rollins	1	0.1			4	0.1
Stetson	31	4.1			12	0.2
Tampa			1	0.1	12	0.2
University of Miami			221	16.2	237	4.0
Other			7	0.5	122	2.1
Not Specified			59	4.3		
Out of State	18	2.4	93	6.8	715	12.1
Total Continuing	457	60.2	1,123	82.2	4,312	73.2
Not Continuing	302	39.8	243	17.8	1,580	26.8
Total Respondents	759	100.0	1,366	100.0	5,892	100.0
Not Responding	0	0.0	757	55.4	0	0.0
Total Study Group	759	100.0	2,123	155.4	5,892	100.0

(1) Total Daytona Beach Jr. College graduates with A.A., A.S., and G.S. degrees for 1965-66-67. Tabulation covers all transferees and non-transferees.
(2) Miami-Dade Junior College post graduate survey of 1966-67 class prior to actually attending their first transfer class.
(3) Broward Junior College is a study of intentions of the total enrollment for the fall term 1969-70.

Source: Daytona Beach Jr. College Institution, Research Committee; Office of Institutional Research, Miami-Dade Jr. College; Fred H. Fleming, Supervisor of Guidance Services, Broward County Board of Public Instruction.

ACKNOWLEDGEMENTS

The Birth of a University . . . And Plans for Its Development was prepared as a joint effort of the Florida International University Planning Staff and Greenleaf/Telesca, Planners, Engineers and Architects who were retained by the Board of Regents as Planners for the project.

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In addition to the persons and organizations listed on the preceding page, the following individuals have made outstanding contributions to *The Birth of a University . . . And Plans for Its Development.*

James A. Alcott, Vice President, Heald, Hobson and Associates
Phillip F. Ashler, Vice-Chancellor for Administration, Florida Board of Regents
William Axford, Director of Libraries, Arizona State University
John W. Barr, President, Barr, Dunlop and Associates
Dennis Carter, Assistant to the County Manager, Metropolitan Dade County
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Michael Kram, Editor, *Falcon Times,* Miami-Dade Junior College, North
Kenneth E. Krouse, Executive Assistant to the President, Ohio State University
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