IOWA DEPARTMENT OF TRANSPORTATION

REPORT

ORGANIZATION AND ALLOCATION OF OFFICE SPACE

HEADQUARTERS, AMES, IOWA

DECEMBER, 1990

BY THE FIRM OF

GBA
GEORGE BUTLER ASSOCIATES, INC.
Engineers / Architects / Landscape Architects / Planners
2055 Ironwood Court / P.O. Box 1520 / Ames, Iowa 50010

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REPORT

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HEADQUARTERS, AMES, IOWA

Study Consultant: George Butler Associates, Inc.
2055 Ironwood Court, P.O. Box 1520
Ames, Iowa 50010
(515) 292-1520

Firm Principal-in-Charge of Study: Gerald Buttron, AIA
Firm Associate-in-Charge of Study: David L. Dahlquist
Project Manager: Tom Wertzberger, AIA

Study documents include: Summary Report
Report
Appendix

Final study findings and recommendations were presented to Department of Transportation staff in February, 1991.

Additional information is available from Facilities Management in the Department of Transportation or George Butler Associates, Inc.

The staff of George Butler Associates, Inc. would like to thank all of the Iowa Department of Transportation employees and staff who have assisted us in gathering data and understanding the operations and needs of your bureaus and divisions. We are grateful for this opportunity to provide to you our professional space analysis services.

The information we have gathered and evaluated provides a thorough and informative look at the current and future space needs of the department. We look forward to your review and use of this information and the alternatives proposed in our report. We welcome the opportunity to further serve you as you continue to address your space requirements.

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STUDY OBJECTIVES

The following objectives guided the office and space allocation study for the headquarters facility of the Iowa Department of Transportation:

- Study and determine the current and future space needs for all departments.
- Prepare an alternative for re-allocating office space.
- Present the cost of implementing the proposed changes.

Meeting these objectives required many tasks and meetings with DOT staff. Generally, the first tasks were to understand the current use and capacities of the existing facility and then to compare this with the projected space needs for each bureau and division. If deficiencies existed between the projected office space needs and the current space available, alternatives for expanding the current facility and reallocating office space for each unit were then developed.

The major tasks involved with developing the space needs and alternative allocation plans are:

TASK ONE - Update current facility plans

Update current DOT facilities plans and format them for the department's computer-aided drafting work station network.

TASK TWO - Evaluate existing facility

Evaluate the existing facility for efficiency of current space allocation, and areas of possible expansion.

TASK THREE - Interview work units

Interview representatives from all forty-three separate work units to understand staffing needs, work functions, equipment and storage requirements, and working relationships.

TASK FOUR - Determine space requirements

Calculate the overall space requirements for each work unit and the entire department.

TASK FIVE - Develop space allocation plan

Develop space allocation alternatives for meeting the space needs of the department.

TASK SIX - Prepare cost and phasing plan

Prepare budget estimate for the cost of the proposed improvements and an implementation plan for phasing the recommendations.

TASK SEVEN - Recommendations

Develop a set of recommendations for proceeding with the information presented in the study.

In addition to the staff located at the headquarters facility in Ames, as a future growth option, the study addressed an alternative of relocating the office staff of the motor vehicle division and of the air and transit division currently located at various sites around the Des Moines area.

The following sections of the report detail the information gathered in each of these steps, the methodology, and the individual task summaries.

TASK ONE - UPDATE CURRENT FACILITY PLANS

INTRODUCTION

The initial step in the study was to update the current facility plans for the twelve buildings of the DOT complex. Current plans were outdated and in varying physical condition. The department recently purchased an Intergraph Computer Drafting Station which will be used in future remodeling and facility management projects. The final, updated plans were delivered to the department in reproducible hard copy and electronic media suitable for the Intergraph CADD work station.

Please refer to the photograph at the end of this section for the location of each building.

METHODOLOGY

The approach to updating the facility plans involved many tasks. First, all existing documentation and prints of the facility were reviewed by the consultant. Using copies of prints provided by the department, the consultant's staff visited all portions of the twelve buildings, took critical measurements, and noted irregularities. In all, thirty different floor plans were evaluated and verified.

Next, the floor plans and new information gathered from the consultant's building visits were electronically drafted at computer-

aided drafting stations, using software compatible with that of the department. The information was entered using a layering system to separate the information for each of the major components of the plan, such as exterior walls, interior walls, dimensions, room names, fixtures, doors, and windows. This will allow the department to manipulate the information and drawings as necessary for any proposed improvements in the future.

First generation copies of the computer drafted floor plans were verified by the consultant. The final plots were then made and delivered to facility management. Also, copies of the computer files were installed into the department's computer.

SUMMARY

The appendix included with this report contains a reduction of each of the floor plans and an index of the updated, current facility plans.


DISTRICT OFFICE
LEGEND
A NORTHWEST WING
B NORTHEAST WING
C ADMINISTRATION
D SOUTH WING
E MATERIALS LAB
F BUILDING NO. 4
G BUILDING NO. 5
H BUILDING NO. 6
I REPAIR SHOP
J SIGN SHOP
K BLDG. & GROUNDS
L WAREHOUSE

TASK TWO - EVALUATE EXISTING FACILITY

INTRODUCTION

To better understand how the existing facility is utilized, the floor areas, building efficiencies, and work unit locations were evaluated. Since some areas of the present facility were originally designed to accommodate future expansion these options were also evaluated in anticipation that additional floor area might ultimately be required.

METHODOLOGY

The first step in this task was to determine the "net-assignable floor area". Net floor area is the entire building square footage (gross floor area) less hallways, stairways, mechanical rooms, restrooms, and other non-office areas. Please remember that for the purposes of this study, floor areas will be expressed in terms of net-assignable floor area and not gross or entire building area.

An important indicator of how well a building meets the potential for offering office space is to calculate "building efficiency". Building efficiency, expressed as a percentage is net-assignable floor area divided by the total gross floor area of the building.

Normally, one could expect that by properly upgrading and remodeling an existing building, approximately 80% building efficiency could be achieved. With construction of new buildings, an 85% efficiency level is usually obtainable.

The chart below shows a summary of existing net-assignable floor areas and overall efficiencies for each of the twelve buildings. Please refer to page 2-8 for additional information about existing office areas and building efficiencies.

Current net floor area available

KEY	BUILDING	NET-ASSIGNABLE FLOOR AREA(S.F.)	BUILDING EFFICIENCY
A	NORTHWEST WING	44,025	73%
B	NORTHEAST WING	21,626	71%
C	ADMINISTRATION	47,750	69%
D	SOUTH WING	16,595	70%
E	MATERIALS LAB	14,560	80%
F	BLDG. NO. 4	5,875	78%
G	BLDG. NO. 5	6,800	77%
H	BLDG. NO. 6	5,450	72%
I	REPAIR SHOP	1,200	92%
J	BLDG. & GROUNDS	670	96%
K	SIGN SHOP	702	94%
L	WAREHOUSE	1,700	95%
	TOTAL	166,953	73%

OPTIONS FOR IMPROVING BUILDING EFFICIENCIES AND ADDING ADDITIONAL NET FLOOR AREA

After the existing floor areas were assessed, several possibilities for improving building efficiency and expanding floor area were examined. These included:

- Re-designing and upgrading existing floor areas by using more efficient layouts of existing furniture or new furniture but not changing existing office walls.

- Remodeling of existing buildings to gain additional office area and to relocate some existing interior walls for greater efficiency.
- Expanding existing buildings.
- Demolishing inefficient existing buildings.
- Constructing new buildings.

These possibilities appear to exist in some of the headquarters buildings:

Redesign and upgrade existing buildings for greater efficiencies

Current building efficiencies can be increased in the Northwest Wing, the Administration Building, and in the first floor office area of the Materials Lab. The increased net-assignable office area to be gained could be as much as:

NORTHWEST WING	4,415 sf
ADMINISTRATION	7,250 sf
MATERIALS LAB	1,990 sf
Total	13,655 sf

Remodel existing buildings to gain additional office space

Remodeling could gain better efficiency and additional office area in the Northeast and the South Wings. The increased net-assignable office area here could be:

NORTHEAST WING	2,461 sf
SOUTH WING	6,951 sf
Total	9,412 sf

Expansion of existing buildings

The Administration Building and the upper floor of the Materials Lab are currently designed and constructed for expansion. In addition, the Northwest Wing could be expanded to the south and west. The net-assignable office space added by these expansions could be:

NORTHWEST WING	10,960 sf
MATERIALS LAB	31,624 sf
ADMINISTRATION BUILDING (five floors)	59,500 sf
Total	102,102 sf

Building demolition

The evaluation of existing office space determined that Buildings Four and Five are inefficient. Due to their age, type of construction, and existing condition, it is apparently not economically feasible to redesign or remodel these two structures. Consequently, these buildings are not included in any future expansion alternative. The net-assignable area removed by the demolition of these two buildings is:

BUILDING FOUR	<5,875 sf>
BUILDING FIVE	<6,800 sf>
Total Reduction	<12,675 sf>

New building construction

The current headquarters facility and grounds are restricted as to where any new construction can occur without purchasing additional land or improving other non-office areas in the Sign Shop, Warehouse, Repair Shop and Buildings and Grounds. However, the land now occupied by Buildings Four and Five could serve as a site for a new building. Each floor of this new building could add a net-assignable office area of as much as:

EACH FLOOR FOR A NEW BUILDING	11,970 sf

The following chart outlines the overall proposed expansion demands.

EXPANSION ALTERNATIVES

	EXISTING NET-ASSIGNABLE OFFICE AREA	ADDITIONAL NET-ASSIGNABLE OFFICE AREA REDESIGN	ADDITIONAL NET-ASSIGNABLE OFFICE AREA REMODELING	ADDITIONAL NET-ASSIGNABLE OFFICE AREA ADDITIONS	REMOVED NET-ASSIGNABLE OFFICE AREA DEMOLITION	ADDITIONAL NET-ASSIGNABLE OFFICE AREA NEW CONSTRUCTION	TOTAL NET-ASSIGNABLE OFFICE AREA ALL IMPROVEMENTS
NORTHWEST WING	44,025 sf	4,415 sf		10,960 sf			59,400 sf
NORTHEAST WING	21,626 sf		2,461 sf				24,087 sf
ADMINISTRATION	47,750 sf	7,250 sf		59,500 sf			114,500 sf
SOUTH WING	16,595 sf		6,951 sf				23,546 sf
MATERIALS LAB	14,560 sf	1,990 sf		31,642 sf			48,192 sf
BLDG. NO. 4	5,875 sf				<5,875 sf>		0 sf
BLDG. NO. 5	6,800 sf				<6,800 sf>		0 sf
BLDG. NO. 6	5,450 sf						5,450 sf
REPAIR SHOP	1,200 sf						1,200 sf
BLDG. AND GROUNDS	670 sf						670 sf
SIGN SHOP	702 sf						702 sf
WAREHOUSE	1,700 sf						1,700 sf
NEW BUILDING (ESTIMATE 4 FLOORS)						47,880 sf	47,880 sf
TOTAL	166,953 sf	13,655 sf	9,412 sf	102,102 sf	<12,675 sf>	47,880 sf	327,327 sf

This study does not make any recommendation regarding remodeling, relocating, or removing the current daycare facility. This operation may remain in its current location and its future can be dealt with independently of this office space study.

The evaluation of the current facility was limited to office space requirements only and does not include recommendations for non-office areas such as sign fabrication shop, warehouses, repair shops, and building and grounds as well as other site improvements.

SUMMARY

Using the total net-assignable floor areas for the current facility and the additional floor areas estimated in the five options listed above, the available office space at the headquarters facility could be as follows:

Summary of total available net floor area

Existing net-assignable area	166,953 sf
Expansion net-assignable areas:	
Redesign buildings	13,655 sf
Remodel buildings	9,412 sf
Expand buildings	102,102 sf
Demolish buildings	<12,675 sf>
New building construction	47,880 sf
Total net-assignable area available	327,327 sf

The two attached graphics of the facility illustrate the current use of the facility along with the existing building efficiency and possible facility expansion.

A NORTHWEST WING

	GROSS SF / ASSIGNED SF / EFFICIENCY	CURRENT SPACE ALLOCATIONS
FLOOR 3	14,925 10,825 72%	Road Design
FLOOR 2	14,925 10,825 72%	Highway Support Team Bridge Design Printing & Graphics
FLOOR 1	15,725 10,375 66%	Program Management Transportation Inventory Transportation Research Planning & Research - Admin. Economic Analysis Contracts Highway Division - Specs. Printing & Graphics
BASEMENT	14,975 9,800 65%	Printing & Graphics

B NORTHEAST WING

	GROSS SF / ASSIGNED SF / EFFICIENCY	CURRENT SPACE ALLOCATIONS
FLOOR 3	9,850 7,350 75%	Road Design Highway Division - Admin.
FLOOR 2	9,850 6,825 69%	General Counsel Maintenance
FLOOR 1	10,575 7,450 70%	Advance Planning State Auditor

C ADMINISTRATION

	GROSS SF / ASSIGNED SF / EFFICIENCY	CURRENT SPACE ALLOCATIONS
FLOOR 3	15,675 11,900 75%	Bureau of Trans. Safety Right of Way Highway Division - Adv. Control
FLOOR 2	15,675 11,800 75%	Bureau of Trans. Safety Accounting Financial/Operational Audits Admin. Support Team
FLOOR 1	15,750 11,125 70%	Commission Room Directors Offices General Counsel Bureau of Policy & Info.
GROUND	21,650 12,925 59%	Bureau of Info. Services Admin. Planning & Research Support Team Training Room Bureau of Policy & Info. Studio Information Processing Automation Technical Support Team Modal Support Team Telecommunications Motor Vehicle Support Team Cafeteria

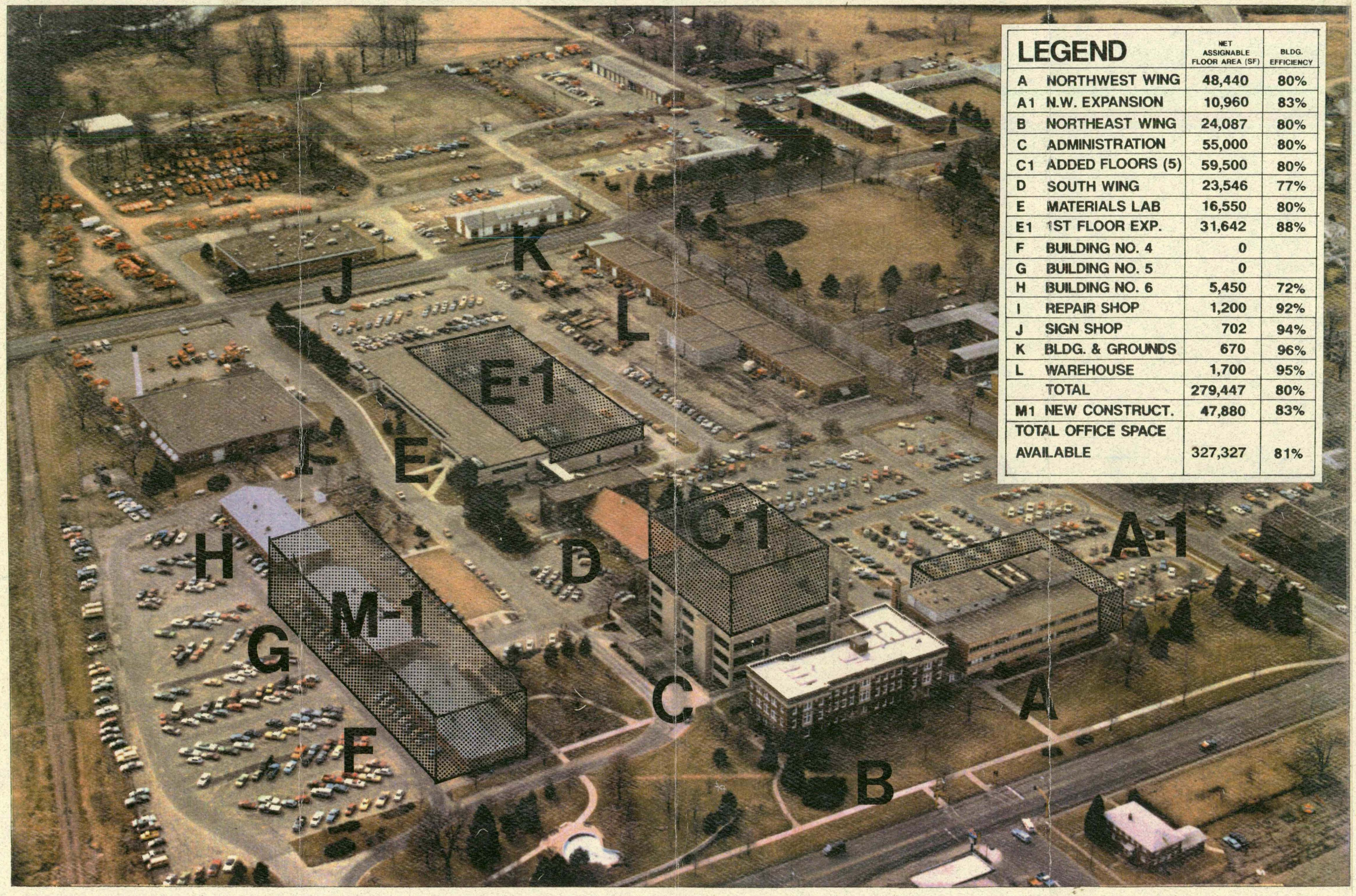
D SOUTH WING

	GROSS SF / ASSIGNED SF / EFFICIENCY	CURRENT SPACE ALLOCATIONS
FLOOR 2	15,000 11,925 79%	Facilities Management Inventory Management Project Planning
FLOOR 1	15,150 10,475 69%	Purchasing Management Rail & Water Highway Support Team Project Planning Library Law Library Auto. Technical Support Team
BASEMENT	5,925 4,400 74%	Facilities Management Transportation Inventory Bureau of Transportation Safety

E MATERIALS LAB

	GROSS SF / ASSIGNED SF / EFFICIENCY	CURRENT SPACE ALLOCATIONS
FLOOR 1	18,200 12,500 69%	Local Systems Construction Materials Materials Conference Room
GROUND	52,825 44,275 84%	Materials Telecommunications

GROSS SF / ASSIGNED SF / EFFICIENCY	CURRENT SPACE ALLOCATIONS
F BUILDING NO. 4	
7,525 5,825 78%	Transportation Inventory Bureau of Human Resources
G BUILDING NO. 5	
8,825 6,800 77%	Transportation Inventory
H BUILDING NO. 6	
7,525 5,450 72%	Daycare
I REPAIR SHOP	
27,375 25,300 92%	Equipment Services
J SIGN SHOP	
19,000 17,775 94%	Inventory Management
K BUILDING & GROUNDS	
14,225 13,675 96%	Facilities Management Equipment Services
L WAREHOUSE	
51,550 48,875 95%	Inventory Management Facilities Management



LEGEND		NET ASSIGNABLE FLOOR AREA (SF)	BLDG. EFFICIENCY
A	NORTHWEST WING	48,440	80%
A1	N.W. EXPANSION	10,960	83%
B	NORTHEAST WING	24,087	80%
C	ADMINISTRATION	55,000	80%
C1	ADDED FLOORS (5)	59,500	80%
D	SOUTH WING	23,546	77%
E	MATERIALS LAB	16,550	80%
E1	1ST FLOOR EXP.	31,642	88%
F	BUILDING NO. 4	0	
G	BUILDING NO. 5	0	
H	BUILDING NO. 6	5,450	72%
I	REPAIR SHOP	1,200	92%
J	SIGN SHOP	702	94%
K	BLDG. & GROUNDS	670	96%
L	WAREHOUSE	1,700	95%
	TOTAL	279,447	80%
M1	NEW CONSTRUCT.	47,880	83%
TOTAL OFFICE SPACE AVAILABLE		327,327	81%

TASK THREE - INTERVIEW WORK UNITS

INTRODUCTION

The study of office space needs further relied on obtaining accurate information about the existing and future space needs of the many operations housed in the headquarters facility. While the department's organization is often perceived in terms of "divisions" and "bureaus", information was gathered at the "work unit" level to effectively analyze the department's overall current and long term space needs. In all, 43 separate work units each having specific responsibilities and work assignments were identified and staff representatives for each were interviewed to obtain information.

Through a series of steps outlined below, each work unit provided information about current conditions as well as expectations for the FY 91-92, FY 93-95, and FY 96-99 time frames. Specific information derived for each work unit included:

- Number of staff positions
- Square footage of office area
- Square footage per position
- Square footage of shared and storage area
- Total square footage
- Functions of the work unit
- Work tasks of the work unit
- Storage and equipment needs
- Relationships to other work units
- Other

METHODOLOGY

The steps used to collect and develop this information included:

STEP 1: Initial kickoff and orientation meeting

An initial meeting with representatives of all work units introduced the scope of study and the consultant. Preliminary information about each work unit was obtained during this meeting.

STEP 2: First interviews with individual work units

Individual interviews were conducted with staff representatives from each of the 43 work units to obtain detailed information about the work unit's staffing, existing space requirements, functions, future staff growth expectations, and relationships with other work units.

STEP 3: Data base preparation

From the information derived during the first interviews with staff representatives of each unit, a data base was prepared to catalogue all information pertaining to existing and expected future space needs.

STEP 4: Second interviews with individual work units

Follow-up meetings were conducted with each work unit to review the consultant's data base and preliminary findings. Adjustments were made in the information to accurately reflect each work unit's specific situation.

STEP 5: Summaries of interviews and information gathering

Written summaries of the interviews and data base were prepared and presented to each work unit. Copies of each summary are provided in the Appendix of this study.

SUMMARY OF FINDINGS

Information was gathered from 43 separate work units of the department. Collectively, these work units operate with 1,126 staff positions currently. Through the year 1999, a total of 120 new positions are expected to be added in many of the work units. The next section will identify the space required now and in the future for the headquarters facility.

Other observations and findings identified during this work task include:

- Existing office storage and equipment needs are not being met. In many cases, offices, hallways, stairways, mechanical

rooms and work areas are being used to store files and equipment.

- A significant number of staff are working in overcrowded spaces where two or more individuals are sharing the space normally assigned to one person.

- In some cases, due to the configuration of existing building walls, individual staff members are assigned what might be considered, by some standards, to be an excess amount of office space.

- Conference rooms are not efficiently located in close proximity to work units. This deficiency is also experienced relative to copy areas.

TASK FOUR - DETERMINE SPACE REQUIREMENTS

INTRODUCTION

At this point, let's recap. First, the existing facility contains 166,953 square feet of net floor space that is presently available for department office functions. This figure is approximately 73 percent of the gross floor area of the 12 buildings evaluated. The remaining 27 percent contains essentially non-usable areas such as restrooms, mechanical rooms, stairways, hallways, and interior walls.

The 1,126 current staff positions are expected to grow by 120 to a total of 1,246 before the year 2000. These staff positions work in 43 separate work units, some of which have close day-to-day interactions with each other. From interviews with staff representatives and through the observations of the consultant, it is perceived that the 167,000 sq. ft. of available office space does not now adequately meet the needs of the current work force.

This section attempts to answer the question of how much additional office space is needed now and in the future for the DOT headquarters.

DEFINITIONS

But first, a few new terms used in this section need definition.

- A typical work group's floor area includes 1.) offices and work areas assigned to individual staff positions and 2.) "shared areas" which include files, storage, circulation spaces between offices, and open work areas, etc. In other words, shared areas are essential to the operations of the work unit and are generally accessible to all staff of that work unit but there are no staff specifically assigned to shared areas.

- It's not unusual to find that an individual work unit conducts much of its day-to-day business in close working relationships with other units. For instance, the Purchasing Management work unit in the Bureau of Support Services has a lot of contact with the Maintenance work unit in the Bureau of Operations. Preparing reports, writing studies, conducting team and project meetings, and other activities may be among those functions which require these two work units to operate adjacently for highest effectiveness and efficiency.

  Interrelationships similar to this example exist between many of the 43 work units. To better understand the extent to which it would be desirable to place related work units close together, the consultant prepared a "Work Unit Matrix". The Appendix contains a copy of the DOT Work Unit Matrix.

With analysis of the Work Unit Matrix and through discussions with DOT staff, thirteen distinct combinations of work units were identified. Termed "work groups", clusters of work units provide opportunities for further improving the efficiency of department operations. Please refer to the chart found at the end of this section for a listing of the DOT work groups. Also note that many of the work groups have the need for "common" work group conference rooms and copy areas. These common areas would be shared by all work units within the work group.

- Finally, all work groups share in the use of several "central areas". These include:

  Large Training Room
  Large Conference Room
  Day Care Facility
  Cafeteria
  Security
  Library

These central facilities now total approximately 10,950 net sq. ft. The consultant's evaluation of these areas suggests that the cafeteria, security, and library do not presently have sufficient space to meet the needs of the headquarters. Overall, an expansion of central facilities to a total of 16,900 sq. ft. is recommended. Please refer to the Appendix for detailed space information for the central areas.

ALTERNATIVES FOR DETERMINING SPACE REQUIREMENTS

Three methods were used to estimate space needs for the headquarters facility. These are titled:

- DOT SPACE PROJECTIONS
- GENERAL SERVICES OFFICE ALLOCATION STANDARDS
- "LEAST SPACE" ALTERNATIVE

The existing levels of staffing for each work unit as well as expectations for the future staff growth (120 positions) remain constant in the calculations for each alternative method. The three time frames of FY91-92, FY 93-95, and FY 96-99 also were identical for each approach.

In the DOT SPACE PROJECTIONS method, the consultant evaluated individual work tasks performed by typical staff positions in each work unit and determined the "ideal" amounts of space needed for each position. This method yielded results that reflect the unique nature of individual staff positions. For example, a staff position in one work unit might normally be required to produce and manage large size drawings while a "drafting" position in another unit might be required to produce standard size drawings. The "drafter" in the first unit would naturally require a greater amount of office area.

In the second approach, the consultant applied standards used by the IOWA DEPARTMENT OF GENERAL SERVICES in allocating and planning state offices in other departments. This approach is characterized by a greater uniformity in space requirements between work units. In other words, the "drafter" would be assigned about the same amount of space regardless of unique job requirements.

The third approach, "LEAST SPACE" ALTERNATIVE, the consultant incorporated "the lows" of the first two approaches. In the case of some work units, the DOT SPACE PROJECTION method produced a lower estimate of space needs than did the application of GENERAL SERVICES STANDARDS. In other cases, the reverse was true. In this third approach only the lowest space estimates from the first two approaches were incorporated in the total projection of space needs.

The charts presented below summarize the projections for each method. The Appendix of this study contains detailed breakdowns by individual work unit for each of the three alternatives used to estimate space needs.

DOT SPACE PROJECTION METHOD

	FY91-92	FY93-95	FY96-99
Office Space--all work units	148,861	151,670	155,646
Shared Space--all work units	59,117	60,440	63,662
Central Areas	16,900	16,900	16,900
Total	224,878	229,010	236,208
Existing Space	<166,953>	<166,953>	<166,953>
ADDITIONAL SPACE NEEDED	57,925	62,057	69,255

Note: All figures are based on net-assignable floor area.

GENERAL SERVICES OFFICE ALLOCATION STANDARDS

	FY91-92	FY93-95	FY96-99
Office Space--all work units	149,827	152,804	157,074
Shared Space--all work units	56,904	58,778	61,649
Central areas	16,900	16,900	16,900
TOTAL	223,631	228,482	235,623
Existing space	<166,953>	<166,953>	<166,953>
Additional space required	56,678	61,529	68,670

Note: All figures are based on net-assignable floor area.

"LEAST SPACE" ALTERNATIVE

	FY91-92	FY93-95	FY96-99
Office Space--all work units	143,233	146,165	150,371
Shared Space--all work units	56,269	57,784	60,642
Central areas	16,900	16,900	16,900
Total	216,402	220,849	227,913
Existing space	<166,953>	<166,953>	<166,953>
Additional space needed	49,449	53,896	60,960

The impacts of adding Work Group No. 14 were also explored by the consultant. Relocating to Ames portions of the Motor Division and the Air and Transit Division from scattered locations in Des Moines is an option that has been explored by the DOT on several occasions. A schedule of net floor areas for this work group is presented below. In considering the impacts of implementing this option, these figures should be added to the "Additional Space Required" totals listed above for all three methods.

Existing Space Allocation	46,580 net sq. ft.
Space needs for FY 91-92	46,930 net sq. ft.
Space needs for FY 93-95	47,027 net sq. ft.
Space needs for FY 96-99	47,120 net sq. ft.

SUMMARY

Under all of the approaches used to estimate overall space requirements for the DOT headquarters, additional office space is clearly needed now and in the future time frames.

Overall, the "DOT SPACE PROJECTION METHOD" and the "GENERAL SERVICES OFFICE ALLOCATION" methods yield approximately the same projections of needed space--roughly 57,000 sq. ft. net in FY91-92 growing to 69,000 sq. ft. in the FY96-99 period.

Yet, when the "LEAST SPACE ALTERNATIVE" method is employed, the deficits drop to 49,000 sq. ft. in FY91-91 and 61,000 sq. ft in FY96-99.

The "LEAST SPACE ALTERNATIVE METHOD" method reflects that the space requirements of all work units would not exceed the office space standards considered by the Iowa Department of General Services.

At a minimum, it is recommended that the "LEAST SPACE ALTERNATIVE METHOD" method by used as a basis to plan for increasing the efficiency of existing office space and to guide the addition of new office space for the DOT headquarters.

DOT OFFICE AND SPACE ALLOCATION STUDY

WORK GROUPS

WORK GROUP NO. 1

DIRECTOR'S OFFICE

COMMISSION ROOM

COMMISSION CONFERENCE ROOM

WORK GROUP CONFERENCE ROOM

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 2

BUREAU OF SUPPORT SERVICES

FACILITIES MANAGEMENT

PURCHASING MANAGEMENT

WORK GROUP CONFERENCE ROOM

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 3

INVENTORY MANAGEMENT

WORK GROUP NO. 4

EQUIPMENT SERVICES

WORK GROUP NO. 5

RAIL & WATER DIVISION

PLAN. & RESEARCH DIVISION

ECONOMIC ANALYSIS

PROGRAM MANAGEMENT

TRANSPORTATION INVENTORY

ADVANCE PLANNING

TRANSPORTATION RESEARCH

PLAN. & RESEARCH DIVISION SUPPORT TEAM

WORK GROUP CONFERENCE ROOM

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 6

HIGHWAY DIVISION SUPPORT TEAM

PROJECT PLANNING

BUREAU OF DEVELOPMENT

ROAD DESIGN

BRIDGE DESIGN

CONTRACTS

SPECS.

WORK GROUP CONFERENCE ROOM

SECURITY (VISIBLE)

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 7

BUREAU OF TRANSPORTATION SAFETY

GENERAL COUNSEL DIVISION

HIGHWAY DIVISION

LOCAL SYSTEMS

RIGHT-OF-WAY

ROW-ADVERTIZING CONTROL

WORK GROUP CONFERENCE ROOM

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 8

BUREAU OF OPERATIONS

CONSTRUCTION

MATERIALS

MAINTENANCE

WORK GROUP CONFERENCE ROOM

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 9

PRINTING & GRAPHICS

WORK GROUP NO. 10

BUREAU OF HUMAN RESOURCES

WORK GROUP CONFERENCE ROOM

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 11

BUREAU OF POLICY & INFORMATION

WORK GROUP NO. 12

BUREAU OF FINANCE

ACCOUNTING

FINANCIAL/OPERATIONAL ANALYSIS

AUDITS

ADMINISTRATIVE DIVISION SUPPORT TEAM

WORK GROUP CONFERENCE ROOM

DEPARTMENT OF REVENUE

STATE AUDITORS OFFICE

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 13

BUREAU OF INFORMATION SERVICES

TELECOMMUNICATIONS

MODAL DIV. SUPPORT TEAM

INFORMATION PROCESSING

TECHNICAL SUPPORT

WORK GROUP COPY AREA (SHARED)

WORK GROUP NO. 14

MOTOR VEHICLE (DES MOINES)

MOTOR VEHICLE DIVISION SUPPORT TEAM

AIR & TRANSIT DIVISION (DES MOINES)

FUTURE EXPANSION

CENTRAL AREAS

LARGE TRAINING ROOM

LARGE CONFERENCE ROOM

DAY CARE FACILITY

CAFETERIA

SECURITY

LIBRARY

TASK FIVE - DEVELOP SPACE ALLOCATION PLAN

INTRODUCTION

With approximately 61,000 sq. ft. of additional space needed in the near future for the DOT headquarters, the challenge for the consultant became one of allocating existing space as well as finding possible locations for constructing new space.

The first option explored was that of determining how much of the projected space needs could be met by redesigning, upgrading, and remodeling existing floor areas of the 12 building complex. Following the removal of the inefficient buildings No. 4 and 5 as described on page 2-5 (12,700 sq. ft.), approximately 10,400 sq. ft. of additional net-assignable space could be achieved through this option.

This leaves 50,600 sq. ft. that would have to be met by office additions and new building construction. Note that this figure does not take into account the 47,000 sq. ft. required if Work Group No. 14 were to be relocated to the headquarters facility.

In light of the rather significant projections of space needs, an option of creating a completely new facility campus was briefly examined. The substantial capital cost associated with this option and the apparent loss of the investment in the existing facilities were immediately apparent. Also, the present campus does have some capacity for expansion and new construction.

Consequently, a third option of allocating space was examined more fully. This involves a combination of upgrading and remodeling existing space and construction additions and limited new buildings.

METHODOLOGY

The following steps were used to develop the space allocation plan:

Locate work units

Review the DOT Work Unit adjacency matrix of all work units to determine the proper locations relative to other work units and the public.

Locate new work groups

Review available locations for appropriate re-allocation of office space to accommodate new larger work groups as well as common conference and copy areas.

Locate central areas

Review locations within the current and proposed expanded DOT facility for central areas such as the Library and the Cafeteria.

Coordinate locations

Allocate work groups and non-assigned areas into current and expanded net-assignable floor area by coordinating the locations from the above three steps.

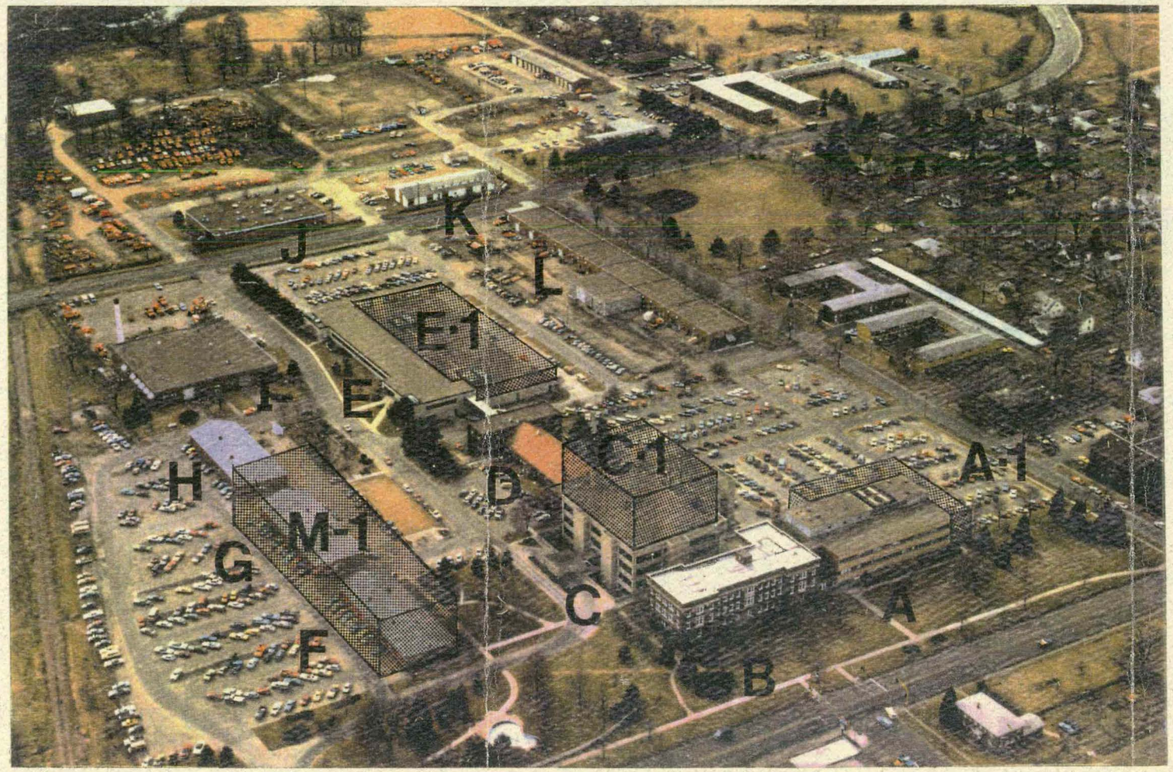
SUMMARY

The allocation of space by work groups and work units is illustrated on the last page of this section. This plan is based on FY 96-99 office space needs as determined in Task 4 earlier.

This allocation plan represents only one possibility for locating all office space needs. Other solutions may be possible and can be explored further as improvement plans progress.

The space needs of Work Group No. 14 (relocated offices of Motor Vehicle and Air and Transit Division) can be met in one of two expansion scenarios. First, Work Group No. 14 could be allocated space in the new construction area (M-1). It could also be

accommodated by the addition of four floors to the Administration Building. But adding these floors for Work Group No. 14 to the Administration Building should be implemented in conjunction with the decision to construct the other additional floor as recommended in this report.



C C1 ADMINISTRATION

	WORK GROUP	PROPOSED SPACE ALLOCATIONS
FLOOR 2,3,4	5	Rail and Water Division
	5	Planning and Research Division Administration
	5	Economic Analysis
	5	Program Management
	5	Transportation Inventory
	5	Advance Planning
	5	Transportation Research
	7	Bureau of Transportation Safety
	7	General Counsel Division
	7	Law Library
	7	Highway Division Administration
	7	Local Systems
		Cafeteria
		Training Room
		Work Group Conference Room (3)
		Shared Copy Areas (3)
FLOOR 1	1	Directors Office
	1	Commission Room
	11	Bureau of Policy and Information
		Lobby
		Library
		Work Group Conference Rooms (2)
		Shared Copy Areas (2)
GROUND	13	Bureau of Information Services Administration
	13	Information Processing
	13	Technical Support Team
	14	Motor Vehicle Division Support Team
		Shared Copy Area

E E1 MATERIALS LAB

	WORK GROUP	PROPOSED SPACE ALLOCATIONS
FLOOR 1	2	Bureau of Supp. Services Administration
	2	Facilities Management
	2	Purchasing Management
	8	Construction
	8	Materials
	8	Maintenance
	13	Telecommunications
	12	Finance - Accounting
	12	Finance - Financial/Operational Analysis
	12	Finance - Audits
	12	Administrations Division Support Team
	12	Dept. of Revenue
	12	State Auditors
		Work Group Conference Rooms
		Shared Copy Areas (2)
GROUND	8	Materials
	13	Telecommunications

A A1 NORTHWEST WING

	WORK GROUP	PROPOSED SPACE ALLOCATIONS
FLOOR 3	6	Road Design
		Highway Support Team
FLOOR 2	6	Road Design
	6	Bridge Design
	6	Highway Division - Specs.
FLOOR 1	9	Printing & Graphics
	6	Contracts
BASEMENT	9	Printing & Graphics

F G BUILDING NO. 4 & 5

TO BE REMOVED

B NORTHEAST WING

	WORK GROUP	PROPOSED SPACE ALLOCATIONS
FLOOR 3	6	Road Design
		Shared Copy Area
FLOOR 2	6	Bridge Design
	6	Project Planning
FLOOR 1	10	Bureau of Human Resources
		Large Conference Room

D SOUTH WING

	WORK GROUP	PROPOSED SPACE ALLOCATIONS
FLOOR 2	7	Right of Way
FLOOR 1	7	Right of Way
BSMT.	2	Facilities Management
	5	Transportation Inventory

WORK GROUP	PROPOSED SPACE ALLOCATIONS
H BUILDING NO. 6	
	Daycare
I REPAIR SHOP	
4	Equipment Services
J SIGN SHOP	
3	Inventory Management
K BUILDING & GROUNDS	
2	Facilities Management
L WAREHOUSE	
3	Inventory Management
4	Facilities Management
M1 NEW CONSTRUCTION	
FLOOR 1,2,3 14	Motor Vehicle Division
14	Air & Transit Division

Proposed Space Allocation

DOT OFFICE & SPACE ALLOCATION STUDY

TASK SIX - PREPARE COST AND PHASING PLAN

INTRODUCTION

The previous sections identified that between 66,000 and 113,000 sq. ft. of space are needed to meet existing and future office space demands at the DOT headquarters. Providing this space can be accomplished by:

- Redesigning and upgrading existing buildings for greater efficiencies
- Remodeling existing buildings for greater efficiencies
- Constructing additions to existing buildings
- Demolishing inefficient buildings
- Constructing new buildings

This section addresses the general costs associated with providing the needed space and presents a strategy for its staged implementation.

METHODOLOGY

Cost estimates were developed for each type of improvement listed above. These estimates included the cost of construction and furnishings. Whenever possible, the use of existing office furniture systems now held by DOT was factored into these estimates.

Please note that the square footage figures used in this section refer to net-assignable space. In estimates involving additions to existing buildings and constructing new buildings, the cost/sq. ft. figures have been adjusted to yield a cost for the total building, not just the net-assignable portions.

Site infrastructure improvements, additional parking lots, and other non-building items were not part of this space analysis study and these features are therefore not included in the cost estimates. These improvements may be required as additional staff are added at the headquarters facility. Costs for relocation and temporary facilities are also not included in these projections.

In the Cost and Phasing Schedule provided at the conclusion of this section, fees for architectural services and a contingency to account for unknown factors and the general nature of this study are included.

Redesign and upgrading existing buildings for greater efficiencies

	Sq. Ft.	Cost	Cost/ Sq.Ft.*	Furnishings
NORTHWEST WING	48,440	$ 91,000	$ 2	$42,300
MATERIALS LAB	16,550	$260,000	$16	$320,000
ADMINISTRATION	55,000	$720,000	$13	$1,050,500
(Asbestos abatement)		$600,000	$13	

Remodel existing buildings for greater efficiencies

	Sq. Ft.	Cost	Cost/ Sq.Ft.*	Furnishings
NORTHEAST WING	24,087	$1,028,000	$43	$528,000
SOUTH WING	23,546	$1,001,500	$43	$480,000

Constructing additions to existing buildings

	Sq. Ft.	Cost	Cost/ Sq.Ft.*	Furnishings
NORTHWEST WING	10,960	$960,000	$88	$56,000
MATERIALS LAB	31,642	$2,710,000	$86	$680,000
ADMINISTRATION (each floor)	11,900	$1,020,000	$86	$260,000

Building demolition

DEMOLISH BUILDINGS FOUR AND FIVE -- $30,000 Lump Sum

Constructing new buildings

	Sq. Ft.	Cost	Cost/ Sq.Ft.*	Furnishings
EACH FLOOR	11,970	$1,200,000	$102	$258,500

* Costs/Sq.Ft. have been rounded to the nearest dollar.

PHASING

Expanding and improving DOT office space and enhancing work unit operations will require careful attention and planning to avoid disruptions in the operations of DOT as a whole. Redesigning, upgrading, and remodeling existing space will, by its very nature, displace or interrupt staff from time to time. Implementation of the additional space identified in the previous sections should occur over five to eight years to minimize the temporary inconveniences of work unit relocations and construction. The following phasing process presents steps to guide the scheduling of various improvements.

Phasing process steps

1. Construction completed on additions or new construction.

2. Existing work units are relocated into new office areas.

3. Office area vacated by work units relocated in step 2. are renovated.

4. Existing work units are relocated into renovated office area.

(Steps 1. through 4. are repeated as necessary.)

COST AND PHASING SCHEDULE

DOT OFFICE SPACE NEEDS

		Additional Net-Assignable Area	Construction	Furnishings
FY93-95	Addition to Materials Lab	31,642 sf	$2,710,000	$680,000
FY93-95	Addition to Northwest Wing	10,960 sf	$960,000	$56,000
FY93-95	Redesign N.W. Wing & Matls. Lab	6,405 sf	$351,000	
FY96-99	Remodel N.E. Wing & South Wing	9,412 sf	$2,029,500	$1,008,000
FY96-99	Redesign of Admin. Building	7,250 sf	$1,320,000	
	Add one additional floor	11,970 sf	$1,020,000	$260,000
	Demolish Bldgs. 4 & 5	<12,675>sf	$30,000	
	Subtotal:		$8,420,500	$2,004,000
	Architectural Fees (10%):		$842,000	$200,400
	Contingency (15%):		$1,263,000	$300,600
	Total:	64,964 sf	$10,525,500	$2,505,000

COST AND PHASING PLAN - RELOCATED OFFICES for Work Group No. 14

FY96-99	New Construction (four floors)*	47,880 sf	$4,800,000	$1,034,000
	Architectural Fees (10%):		$480,000	$103,400
	Contingency (15%):		$720,000	$155,100
	Subtotal:	47,880 sf	$6,000,000	$1,292,500
	Total:	112,844 sf	$16,525,500	$3,797,500

* Space requirements for relocated offices may also be met through construction of four additional floors on the Administration Building.

This schedule will need to be reviewed for possible revisions as the final scope of improvements becomes further defined.

TASK SEVEN - RECOMMENDATIONS

The study effort leading to this report was intended to provide DOT and State of Iowa officials with new information from which decisions could be made about the future of the headquarters facility. As such, this report becomes a starting point from which effective, comprehensive and integrated decisions can be made. To that end, these general recommendations are offered for continued action to improve and enhance office space at the DOT headquarters in Ames.

Develop a set of space allocation standards for each titled job class based upon the open office system.

Finalize planned growth and equipment needs for each of the work units through the year 1999.

Based on the recommended methodologies and options of this study, develop a final allocation plan, annual budgets, and phasing plans for locating all work units within work groups at the DOT headquarters complex.

Based on work unit requirements, expansion needs, the final allocation plan and budget, make improvements and add office space to the headquarters facility through:

- redesigning and upgrading current work units,
- remodeling of selected existing buildings,
- adding to selected existing buildings, and
- new construction.

Integrated with the improvement plans outlined above, site infrastructure and parking problems, general concerns of aesthetics, qualities of the human work spaces, and improving office functions should be addressed.

TYPICAL OFFICE LAYOUTS

Three typical work space plans were developed as part of this study to meet the normal functions of the DOT staff. These are:

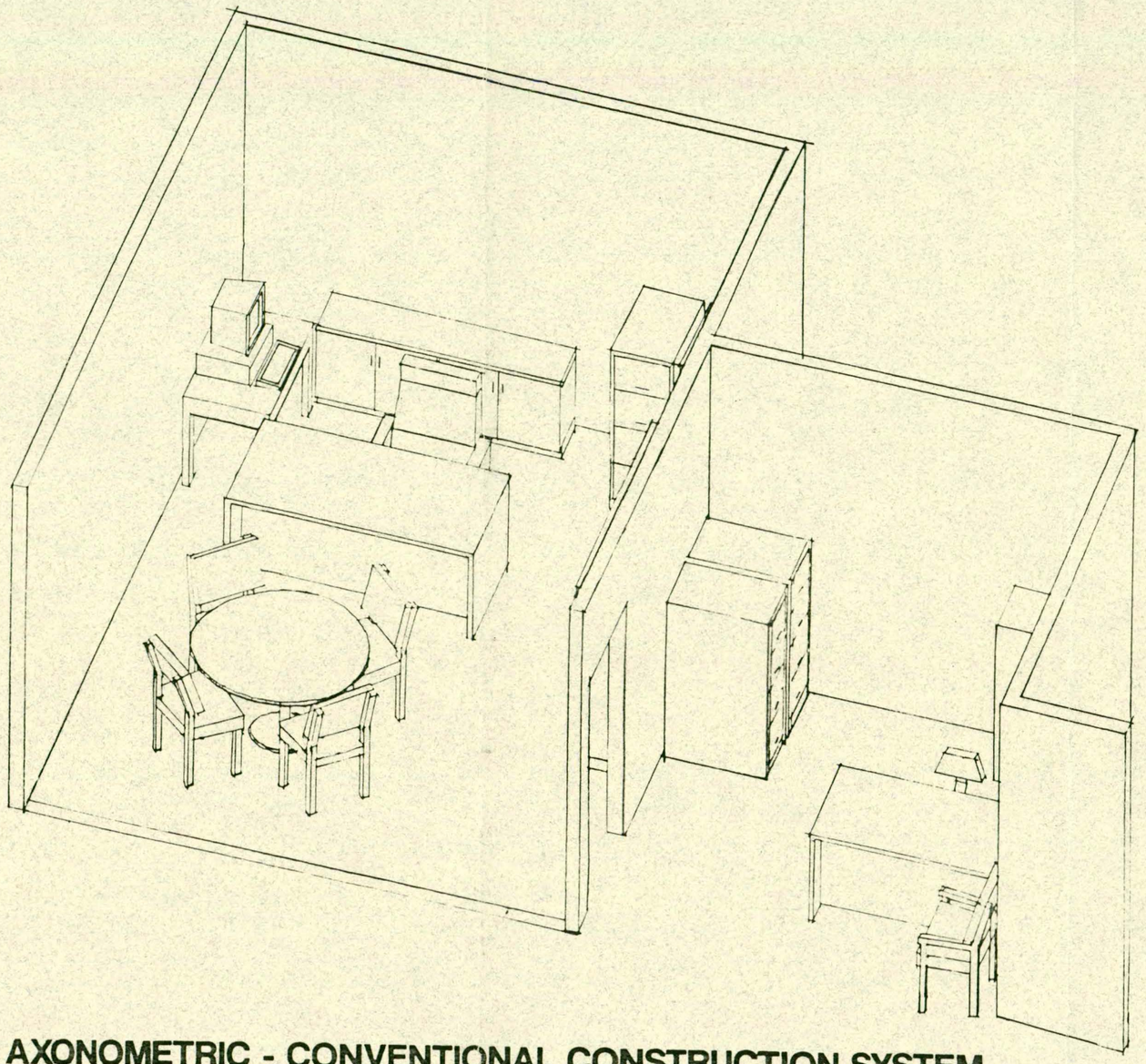
- Bureau Director and Secretarial--Conventional Construction System
- Bureau Director and Secretarial--Open Office and Furniture System
- Design Section--Office of Road Design.

Both office space layouts offer roughly the same amount of floor area and each offers flexibility in arranging individual pieces of furniture. For long range planning purposes, both options are quite similar. For final design, the selection of one system over the other will depend largely on the degree to which the overall space under consideration can accommodate a "fixed" or "open" system and the need to maintain flexibility in the future in the unit's arrangement and interrelatedness of individual spaces.

The prototype plan for the Design Section is based upon the recommended space requirements for performing the normal tasks of the Road Design work unit. Personnel from Road Design reviewed their tasks and space requirements and provided suggestions for creating this plan.

As individual bureaus may be relocated in the future and as individual space requirements are finalized, specific layout and design of individual work spaces will be required.

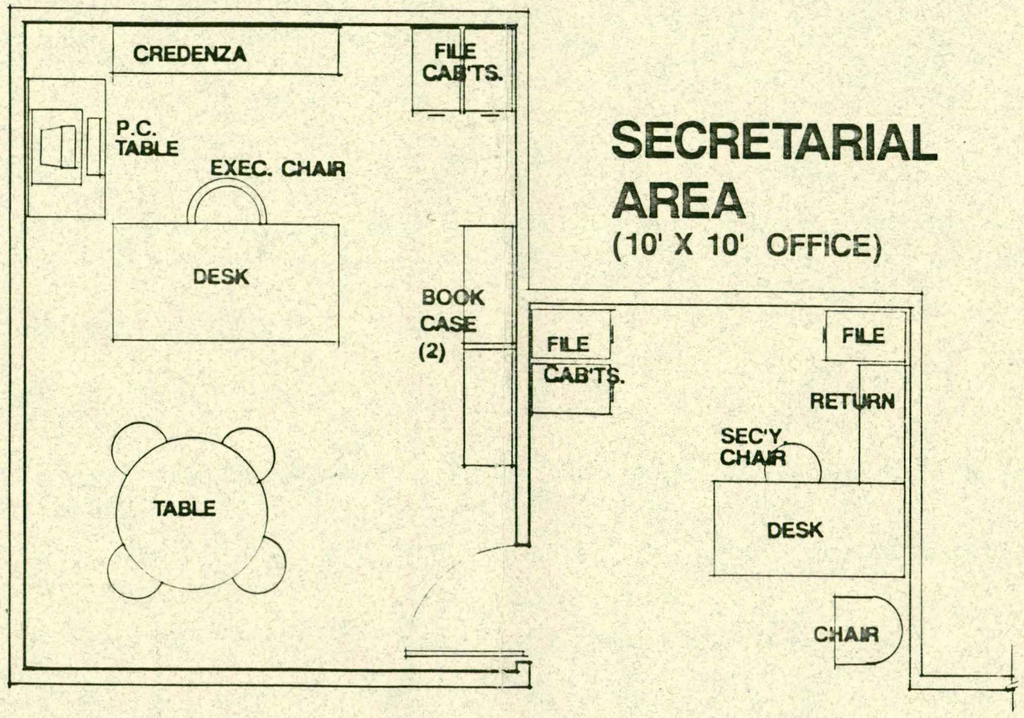
These three plans should be viewed as being typical and subject to refinement to incorporate unique building features such as structural walls, utility sources, and other more or less fixed items.



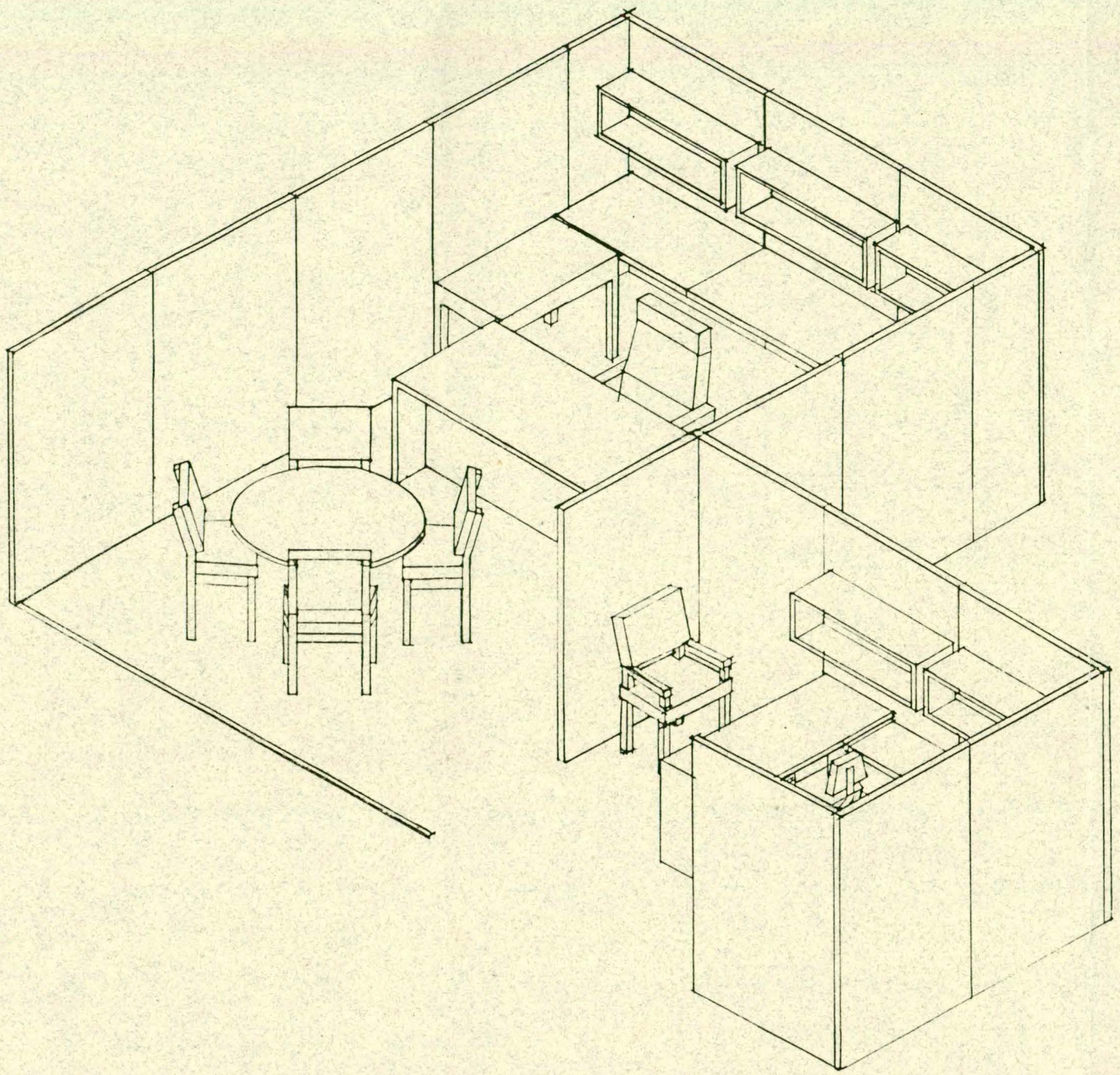
AXONOMETRIC - CONVENTIONAL CONSTRUCTION SYSTEM

BUREAU DIRECTOR
(13' X 17' OFFICE)

SECRETARIAL AREA
(10' X 10' OFFICE)

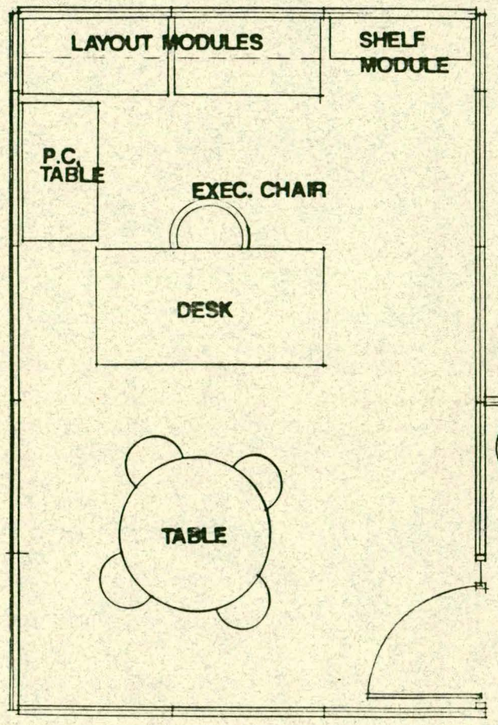


CONVENTIONAL OFFICE & FURNITURE

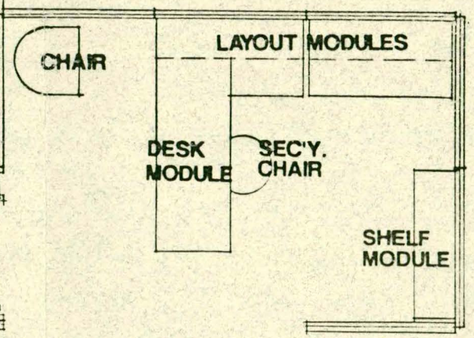


AXONOMETRIC - OPEN OFFICE PARTITION SYSTEM

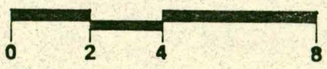
BUREAU DIRECTOR
(12' X 18' OFFICE)



SECRETARIAL AREA
(8' X 12' OFFICE)



OPEN OFFICE & FURNITURE



TOL-4

DT-3
DT-2
DT-4
DT-5
TEA
FILE CAB'T. (TYP.)
DRAFTING TABLE (TYP.)
TE-1
P.C.
LAYOUT SPACE W/ SHELF (TYP.)
PARTITIONS AT 5'-0" HT.

DT-3
DT-2
CLO.
ROLL STOR.
ROLL STOR.
(INTERGRAPH WORK STA.)
CAD
FLAT FILES W/ TABLE TOP
FLAT FILES
CAD
(INTERGRAPH WORK STA.)

DT-3
DT-2
CLO.
ROLL STOR.
F.C. STA.
PARTITIONS AT FULL HT.

DT-3
DT-2
DT-4
PEG BOARD (TYP.)
DT-5
HANGING PLAN FILE (TYP.)
TE-IT
BOOKSHELVES (TYP.)
P.C.
DESK
TEM-2
TACKABLE SURFACE

PLAN FOR DESIGN SECTION - PROTOTYPE

TOTAL SQUARE FOOTAGE = approx. 2400

0 2 4 8