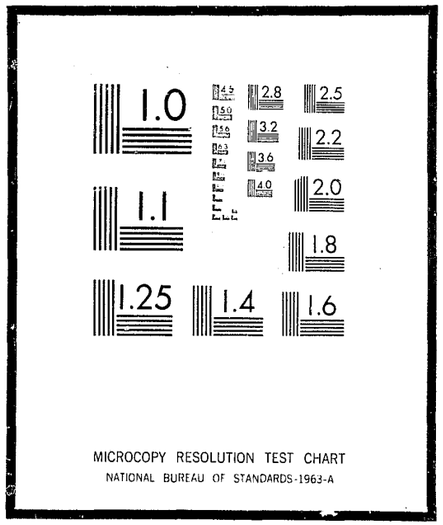

SPACE MANAGEMENT AND THE COURTS: A SUMMARY

by
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FOREWORD

In the State of New York, as in jurisdictions elsewhere in the country, symptoms are surfacing to warn of an underlying crisis in judicial administration. Confronted by rising civil and criminal caseloads, shifts in population density and distribution, advances in every kind of technology and increasingly loud demands for due process, our management tools and the ways we use them are becoming inadequate. Perhaps nowhere are such deficiencies more in evidence than in the buildings housing our court facilities; indeed, the quantity and quality of court and court-related space is sadly inappropriate to the judicial mandate.

The Appellate Divisions of New York's First and Second Judicial Departments long have recognized the existence of acute space problems in the courts within their jurisdiction. Directly contributing to a divergence between desired and realized judicial performance, these space problems can be characterized by several factors:

- Space available is insufficient.
- Existing space is being used inefficiently.
- Courtrooms and related spaces are drab, dingy, ill-lighted and acoustically poor.
- Spaces essential to sound court management and operation, including jury assembly and deliberation, public waiting and security, are poorly maintained and located.

New York State Judicial Conference plans to speed criminal trials and to create special narcotics court facilities as well as other new judicial procedures adding to an already huge caseload burden and creating, for New York's court facilities, a space crisis of major proportions.

Perhaps the major thrust of this crisis to date has been in sacrifices wrought to judicial time, judicial performance and dignity of the judicial process. To cite only a few instances -- the misuse of space adds to the time spent transferring records and moving personnel, reduces personnel and records security, and slows jury selection and deliberation.

Dignity and decorum, difficult to maintain in court buildings that stand as mute evidence of official neglect, are being reduced to a point where public respect for law is being called into question.

To recognize that space problems exist does not go far enough; accurate problem definition and a program to remedy deficiencies equally are essential. Moving in this direction, early in 1970 the First and Second Judicial Departments joined in sponsoring the Courthouse Reorganization and Renovation Program (CRRP) to recommend a 30-year space use and planning program for Manhattan's Foley Square court complex -- one of the largest court complexes in the country. To deal with its space problems, and drawing major financial support from the U.S. Department of Justice's Law Enforcement Assistance Administration, the Rockefeller Brothers Fund, and the City of New York's Municipal Services Administration, CRRP functioned under a three-part mandate:

- Immediacy -- recommendations should be readily implementable within the next few years.
- Optimization -- optimum use should be sought of existing facilities rather than to propose extensive new construction.
- Minimum Cost -- recommended expenditures should be accommodated within the present fiscal restrictions, consistent with the magnitude of the space crisis.

In addition to recommendations and plans specific to Manhattan's Foley Square court complex, CRRP was asked to develop a methodology of space use analysis applicable to courts in other metropolitan areas. A further responsibility integral to the total program was to analyze security problems and recommend solutions, for the Foley Square court facilities specifically, and for other metropolitan courts, as well.

From its broad-based research, CRRP, under the very capable direction of Dr. Michael Wong, has prepared a comprehensive handbook on courthouse space management and security design for publication and national distribution by the Law Enforcement Assistance Administration. The handbook, and its companions, a monograph series published in October, 1971, and the final report for the improvement of Foley Square court and related facilities, are believed to represent the first work of this breadth conducted in any state court system in the United States.

The work of Dr. Wong and his staff well may suggest the course to follow for other jurisdictions in New York State and throughout the nation.

CRRP's comprehensive recommendations for court facility reorganization and renovation began to be implemented in 1971. All CRRP recommendations can be implemented by 1976 at an estimated total cost for the entire complex of $31.5 million -- a modest enough expenditure in comparison to skyrocketing new building costs. Of this total, $21.1 million is estimated to fully rehabilitate and renovate into an appropriate court facility a New York State Office Building, and $10.4 million is the estimated cost to renovate and reorganize five other court buildings, all in or near the complex. If all recommendations are implemented, the projected space needs for all the courts in the complex would be satisfied for the next 30 years, after 1970. It is my earnest hope that, with the continued support of the New York City Department of Public Works and Bureau of the Budget, this goal will be met.

The program recommended for Foley Square is an outcome of the kind of planning and analytic methodology discussed at length in the handbook. The work offers to judicial administrators, architects and planners and others concerned with court space needs, an imaginative and innovative research and planning program which the Appellate Divisions of the First and Second Departments are proud to have sponsored.

Harold A. Stevens

Presiding Justice, Appellate Division
First Judicial Department, State of New York
March, 1972

A NOTE OF THANKS . . .

The director and staff of the Courthouse Reorganization and Renovation Program wish to express their grateful appreciation to all those who supported the program over the past two years. While it is impossible to list by name the many persons both in the public and private sphere who have contributed to the program, special gratitude is due the following:

To Presiding Justices Harold A. Stevens and Samuel Rabin and Directors of Administration Leland L. Tolman, Judge Arthur S. Hirsch and Gerald Stern of the Appellate Divisions, First and Second Judicial Departments, sponsors of the program.

To Administrative Judge Edward R. Dudley, Thomas B. Galligan and Norman Goodman of the Supreme Court, Administrative Judge David Ross and Lester C. Goodchild of the Criminal Court, Administrative Judge Edward Thompson and Howard F. Tyson of the Civil Court, Administrative Judge Florence M. Kelley and Merril Sobie of the Family Court, Surrogate S. Samuel DiFalco and Paul J. Powers of the Surrogate's Court, the program director and staff are indebted for their contributions.

To the liaison officers assigned by court and court-related departments to collaborate with program staff, and to the other dedicated and hard-working court and court-related personnel, who have cooperated so generously, goes the collective appreciation of the program staff.

To Milton Musicus, Administrative Director of the New York City Municipal Services Administration, to Commissioner Alfred C. Maevis of the Department of Public Works, to Donald H. Elliot, Chairman, and Edward Robin, Executive Director of the City Planning Commission, to David A. Grossman and Sol Kanitzky of the Bureau of the Budget, and to their staffs and those of other city agencies involved either in the operation of the program or in the implementation of its recommendations, goes our appreciation for their collaboration and guidance.

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New York State Planning Agency, and to Michael J. Dontzin, Counsel to the Mayor, the program director expresses his gratitude for their collaboration on special facility projects.

Too numerous to thank individually are the court administrators, state planning agency personnel, LEAA "Pilot City" program staff, city agency personnel in over thirty-five states and more than a hundred facilities visited by the program director over the past two years in connection with the program.

To the Honorable Stanley H. Fuld, Chief Judge of the Court of Appeals in the State of New York and Chairman of the Administrative Board of the Judicial Conference, a special note of thanks for his continued interest in the program, his encouragement and advice.

And, finally, to the members of the program staff who have contributed beyond normal time and effort to bring the program to a fruitful conclusion, the program director and handbook author wishes to express his sincere appreciation.

F. Michael Wong

Director, Courthouse Reorganization & Renovation Program
President, Space Management Consultants Inc., New York
March, 1972

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SPACE MANAGEMENT AND THE COURTS - A SUMMARY

"Space Management and the Courts" is a handbook containing basic planning and design precepts related to the efficient use of space in court buildings and related law-enforcement facilities. This volume summarizes the major ideas in the handbook. Intended primarily to assist administrators responsible for programs to reorganize, renovate or construct such facilities, the space management concepts and applications presented in these publications should prove most useful as well to architects and other planners about to embark on a facilities study.

This summary has been prepared in detail sufficient to gain a general understanding in the use of space management process. Reference to the complete handbook is recommended for those preparing to undertake a complete facilities study.

In content, "Space Management and the Courts" and this summary draw on the work of the Courthouse Reorganization and Renovation Program (CRRP), a study of New York County judicial facilities in Manhattan's Foley Square conducted during 1970-1972. While the information developed is especially relevant to urban court systems, CRRP was intended by its sponsoring agencies* to be a demonstration program with nationwide impact regardless of locale and jurisdictional level. Most of the material, therefore, is capable of extrapolation for wide application.

Each chapter treats an important aspect of the space management planning process. By following this progression, the reader should arrive at a level of understanding sufficient to evaluate an anticipated study and its progress once under way.

Chapter One introduces basic concepts of space management, reasons why these concepts should be part of facility planning, and benefits that can result as they are translated into an actual study. This chapter also touches on consultant selection.

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*Major fun ing for CRRP was provided by the Law Enforcement Assistance Administration, U.S. Department of Justice, with additional support given by the Rockefeller Brothers Fund and the City of New York. The sponsoring agency was the Appellate Divisions, First and Second Judicial Departments, State of New York.

Chapter Two describes the space management methodology developed to study the courts of New York County. The first part of the chapter takes the reader step-by-step through a textual explanation of this methodology. The second part provides a faster overall look at the same process through a series of graphics.

Having familiarized himself with methodology, the administrator/planner next needs a basis for evaluating adequacy of existing facilities to meet present and projected needs. Chapter Three provides this knowledge in the form of space standards and design guidelines -- the first such known comprehensive compilation for courts and related facilities. Organized according to functional spaces within a facility are physical, environmental and psychological data to be considered in facilities planning. Space standards for working units and their components, environmental criteria, and access and security requirements, are based on functional needs of persons performing activities making up the particular function.

Armed with this detailed data, the administrator/planner, beyond being able to check how well facilities meet present needs, can formulate "block-use" plans, a preliminary basis for evaluating overall building space use based on established functional and spatial relationships.

Chapter Four, a discussion of manpower projection techniques, marks the start of planning future personnel and space needs. Usually conducted coincidently with earlier phases of the space management process, manpower analysis must account for factors such as population trends, crime rates (in the case of criminal court analysis), and anticipated caseload, taking into account anticipated legal, procedural and political changes. These data are analyzed to project expected personnel needs over a given period (intervals of, say, five years) by job classification, by department and by facility. These projections will, in turn, be synthesized into a projection of required courtroom, ancillary, departmental and related spaces required over the same period.

Two factors bearing on space management decisions, because of their significance, are treated in separate chapters: courthouse security and a comprehensive information communications system.

Courthouse security, the subject of Chapter Five, is of far-reaching concern in many current-day facilities, as even casual reading reveals.

A comprehensive theory of facility security is developed and applied to the analysis of typical court facilities. Included are risk factors, security problems, and an array of security system analysis and design factors. Based on the concept of an integrated facility security system, security precautions and recommendations take three forms: space management techniques, operational solutions, and security technology.

In Chapter Six, major components of a comprehensive information communications system are examined, among them design of a directional sign system incorporating psychological and perception studies, and the application of a computerized information storage and retrieval system.

Having come this far, the planner is ready to develop alternative solutions to facility space problems. Chapter Seven describes typical space management applications and problem solutions which should have applicability at the local level. Included are basic recommendations for court complexes, court and related buildings and their working units.

Evaluating the feasibility of recommendations rests in large part on cost, a constant consideration for the administrator/planner. Factors which bear on cost estimating and the use of published cost indices, with precautions on their use, comprise Chapter Eight. For those interested in optimal cost research, this chapter suggests a research methodology for developing cost-performance-comfort relationships. Finally, Chapter Eight outlines a basis for assessing fair rental value of judicial facilities under statewide operation.

Program administration and cost planning forms the basis of Chapter Nine. Among the topics elaborated upon are practical aspects of running a program office, and procedures for establishing essential and effective working relationships between program staff and personnel of the courts, implementation agencies and other organizations at local and state levels. Suggestions to enhance the implementation of recommendations rounds out the handbook and this summary.

In sum, a facilities planning program, patterned along described lines, represents a comprehensive approach to problems of space management for courts and related facilities now and in the future.

SPACE MANAGEMENT CONCEPTS

Space management is a comprehensive and systematic approach for deriving feasible and flexible solutions to administrative, operational, personnel and spatial problems. Space management encompasses many interrelated planning components before, during and after the completion of a facility project, deriving solutions through a well-structured methodology consisting of a logical sequence of analytic processes.

An effective space management program embraces much more than the mere physical setting. In fact problems initially defined in spatial terms frequently have their source in administrative or management problems. In such cases, a space problem is effect rather than cause. To resolve problems at the source, space management approach and methodology must retain a comprehensiveness sufficient to analyze not only facilities data but administrative and management data as well.

A space management program analyzes and evaluates existing resources, including personnel, equipment and facilities, prior to recommending and planning new ones. At a time when budgets for new construction are restricted while the need for more adequate facilities increases, a proven feasible approach of achieving maximum cost benefit is to assess the capacity and potential of existing resources prior to planning new ones. Only after a thorough evaluation of existing resources has been completed can a realistic assessment of new resource requirements be determined.

In terms of personnel, analyses are made of efficiency and effectiveness of existing personnel, their organization, training, promotional lines, performance and output, and adaptability of personnel to differing roles within an organization. In terms of equipment, careful analysis is made to evaluate the capacity, utilization factors, power requirements and adequacy of existing equipment and systems to handle projected additional loads. In terms of facilities, detailed functional and spatial relationships, based on personnel, communication, time-and-motion, and security studies, are developed to assess adequacy of existing facilities. Projection studies of personnel, operational and space needs also are conducted to measure suitability and adequacy of existing facilities.

During a space management study, some existing buildings almost certainly will be found to be more adaptable than others to rehabilitation for specialized functional needs. Buildings determined to have this high "rehabilitation

potential" can be reorganized and renovated at considerably lower cost within a shorter time than is required to construct a new building of similar capacity. A building with large floor area and a central communication and services core, for example, would have higher rehabilitation potential for conversion into a criminal court facility than a structure with a smaller floor area (say, under 5,000 sq. ft.) with a corner communication and services core. In other words, buildings with high rehabilitation potential usually have low structural and planning constraints. Consideration, however, has to be given to the inconveniences caused to occupants during reorganization and renovation, and a carefully phased project implementation has to be devised to minimize such disruption.

To adequately accommodate projected manpower and spatial needs, a space management program provides alternative solutions, accounting for current and anticipated developments of a legislative, political, economic and social nature that could affect the process under study. In terms of space management, projection methodologies may require assumptions about casual relationships that cannot be proved, resulting in a degree of accuracy that decreases rapidly as time span increases. Consequently, planning and design flexibility becomes critical, if facilities are to accommodate optimally projected needs. Movable partitions, office landscaping, providing additional unfinished floor for expansion needs, modular unit construction, multiple use spaces and standardization and unification of system components -- all can enhance flexibility in a space management plan.

Reorganization or renovation within a facility must be formulated in accordance with the existing architectural style, and recommendations incorporating external building modifications must account for the established style of adjacent buildings. Space management strives to create architectural, planning and functional harmony, both in external treatment and internal operation.

Contributing to any space management study is an array of design and planning components, not the least of which involve security and communication systems. Decisions related to security systems, in fact, may significantly determine the overall facilities planning. On the other hand, security needs can only be met effectively when a balance is struck between space management techniques, manpower planning and utilization, and available security systems and equipment. A decision, for instance, to separate prisoner circulation from that of judges and public can determine layout of a courtroom floor.

Another strong influence on planning is the design of communication systems: an integrated network of directional signs to guide people to their destinations; a public information communications system to provide essential case information to qualified users; an information input, retrieval and display system to improve information communication capacity throughout the justice system; and a security communications system to improve courthouse security in the most effective and economic manner. For example, a large urban arraignment courtroom reverberating with confusion and noise might be replaced by a smaller courtroom with a large waiting room to improve decorum and court operation, the two spaces made to function effectively, in part, by an inter-communication system.

Space management studies should be undertaken as an integral part of court management studies. Changes proposed for an existing system of management would provide input necessary to carry out second phase evaluation of existing facilities prior to recommending reorganization and renovation or planning of new facilities to accommodate projected needs. This concept is especially applicable to studies conducted on a statewide basis where management decisions invariably affect the use and planning of many facilities.

Comprehensive space management also must guide recommendations through to implementation, a process achieved successfully only by coordinating planning at all stages with local implementation agencies. Additionally, a space management program can be structured to assist local architects in facility design and supervision, and to evaluate such projects after their completion.

The scope of space management should extent beyond local facility projects at county and municipal levels. Centralized funding for operations and improvement of court and related correctional and law enforcement facilities at the state level can result in long-term cost savings through programs such as facilities consolidation and modular components development to meet short- and even long-term space needs. State financing of court operations also would encourage planning and implementation at local levels to be coordinated through unified standards and guidelines embodied in a comprehensive statewide facilities plan.

What follows, then, is a further discussion of the major components of space management, as outlined above, and as discussed at greater length in the handbook,"Space Management and the Courts."

SPACE MANAGEMENT METHODOLOGY

A space management program structured along lines similar to those shown in Fig. 1 -- the methodology derived by CRRP for New York's Foley Square court complex -- will identify existing relationships between people, their activities, and equipment within facilities or buildings comprising a complex. Such a program will measure the degree to which realistically predetermined objectives and clearly defined functional criteria are satisfied. It will collate this information with established communications patterns among persons within a spatial system to arrive at a determination of inter-personal relationships, their communication systems and, eventually, those persons and activities closely interrelated. Accounting for variables that may bear on future space needs, the program will project future manpower and space requirements to be accommodated in the existing or proposed facility. From such reliable knowledge of environmental and functional conditions, spaces can be planned for maximum operational efficiency.

A brief discussion of stages of the methodology shown in Fig. 1 follows.

Define Goals and Objectives

Two sets of goals and objectives were operative -- those of the program (for example, optimizing space use in existing buildings) and those of the system being studied (for example, improving existing space use to improve the quality of judicial administration).

Formulate, Test and Evaluate Approaches

Techniques at this stage included interviews with unit staff, primarily by questionnaire, measurements of operational parameters such as work output and environmental conditions, observations of procedure, and spatial characteristics and investigations of building and engineering systems.

Compile and Organize Data

Department heads and a good cross-section of departmental personnel were interviewed. All information pertaining to overall departmental operations -- caseload, for example -- was obtained, insofar as possible, from the department head

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or his appointed liaison. Others were able to describe factors such as staff responsibilities and work capacity, as well as space adequacy for functions performed.

Analyze Existing System and Facilities

Existing operations and facilities were evaluated comprehensively as to their effectiveness in meeting goals of the judicial system. Part of this effort consisted of an analysis of adequacy and performance level of spaces within existing buildings, based on established space standards. To help assure that the evaluation technique finally selected was unbiased, a number of approaches was considered by project staff, as well as by court personnel and others associated with the courts.

An organizational chart was devised according to major functions -- administrative, clerical, judicial, external and so on -- conforming to a function-oriented concept of research methodology, and providing useful information relating to functional and spatial relationships.

A still deeper understanding of system or facility operations was gained by preparing an overview chart to show major functions and sub-functions of particular systems, relating court departments or units or overlapping functions for use in subsequent departmental analysis and manpower projection studies. The overview revealed relationships between major functions as well as between major or combined spaces. Each major function subsequently was analyzed in greater detail, relating sub-functions to functions and spaces within a major department. Functional and spatial relationships then were established at sub-functional or departmental levels.

The sequence of existing operations was reorganized and presented in flow charts sub-divided into major functions and spaces, indicating time by distance and by notes. By incorporating traveling, waiting and processing time and related data with the sequence of operations, existing type and length of delays were pinpointed. Existing operations then were measured against objectives, relating legal considerations, efficiency and the like.

Develop Proposed System and Facilities

To derive proposed operations, existing operations are measured against objectives of the proposed system. By pinpointing causes of delays and other problems

in space use, and by relating these factors to improved concepts, proposed operations were defined. (Such operations should improve significantly the effectiveness of manpower, document flow and equipment use, as well as the use of spaces within which the operations are performed. Additionally, time required for each operation should be reduced.)

Problems were classified into several categories, among them: types of crimes committed and cases initiated; frequency of occurrence; spatial and environmental problems; victims and offenders; and locational linkages.

From the information developed in the evaluation of operations, a sequence of proposed operations were presented in flow charts. Operations remain in sequence, but were organized in terms of major functions and spaces. Sequence of operations was presented on a diagrammatic building section to show how problems in existing operations and facilities have been resolved.

Matrices, analytical tools for measuring and quantifying functional and spatial relationships, were used to study intra- and inter-departmental relationships. From data contained in the matrices, functional and spatial relationships were established and shown graphically, providing a system overview of departmental relationships.

In presenting spatial relationships, functions shown in a functional relationships diagram were replaced by their corresponding spaces reorganized and classified into "public", "restrictive" and "secured" or "private" spaces. Spatial relationships constitute one component of essential information needed for the planning of spaces in new or existing buildings.

Develop Alternative 'Block-Use' Plans

After having made a preliminary assessment of functional or departmental needs developed from interviews and analysis of existing operations, it is possible to assign bulk space to departments, based on the priorities and established spatial relationships, as well as design factors such as security needs. Such "block-use" plans and priorities form a basis for assessing merit of departmental requests to alter use of existing space or to expand. If a request for space use change or expansion were not to conform with a block-use plan, the request then would be rejected or an alternative solution found.

Establish Design Standards and Guidelines

To develop detailed space plans required the introduction of space standards and manpower projections. Space standards include courtrooms and ancillary facilities standards, work space standards and common or shared space standards. Environmental standards also were developed.

Develop Manpower Projections

A manpower planning study for each department identified and evaluated current staffing levels, historical growth trends, staffing rationale, staff productivity and assignment, overall departmental capability and limiting factors on staff size. Manpower projections accounted for work schedules and responsibilities, probable effect on the facility of proposed legal and procedural changes, improvements in staff utilization and caseload disposition rate, and staffing requirements in five-year intervals through the year 2000.

By carefully analyzing past trends in the number and use of personnel and their work capacity, and by evaluating prevalent and anticipated economic and political conditions, manpower requirements for each department were projected. Projections then were summarized to provide the total manpower requirement in each court. A separate manpower projection was undertaken for courtroom and ancillary facilities.

Determine Space Requirements

Having established unit space standards for court personnel and having projected manpower requirements in time intervals, space requirements for each department or function were determined, first by assessing the amount of work space necessary for each department, and then by calculating the shared and common spaces needed in each department. Combined work space, common and shared space and courtroom and ancillary spaces indicated total space needs per court building. Space standards for each additional courtroom in an existing or new court building then were established. Spatial projections also were completed for each department, each court building and the court complex. Summary charts at each level provided all necessary space information for programming and planning all facilities.

Develop Space Use Diagrams and Plans

Space planning diagrams, translated from spatial relationships diagrams for each department, can be used by the designer to commence detailed physical planning and design of department spaces.

Building space planning diagrams -- spatial relationships within an entire building -- next were developed, along with recommendations on allocation of bulk space by floors. By this time, space requirements for each department and for each building had been established, and the allocation and planning of spaces within a preliminary building outline was recommended.

Combining information on locational linkages and planning objectives with data established in the previous steps led to overall space planning facility diagrams and recommendations for an integrated security system and a comprehensive communications system.

Space use diagrams or plans provided the basis for the reevaluation of space standards and recommendations for each kind of activity, each department and each building. It now became possible to compile a comprehensive check list for the design of all departments within facilities or facilities within a complex, reflecting changing needs of facilities and innovations developed from the comprehensive and integrated analysis.

Develop Engineering Solutions

Preliminary studies into engineering systems and cost feasibility were developed coincidentally with each alternative planning scheme. To help minimize costs of modifying engineering systems, operating data had been established during the data-compilation phase of the project to determine systems adequacy in handling additional capacity of renovated spaces by a safe margin. Alternative systems were analyzed individually and in combination with others in terms of cost and installation feasibility.

Evaluate Feasibility

The above systematic analysis approach permitted development of several alternative schemes in the form of space planning diagrams or space use plans. Preliminary evaluation of the functional and economic feasibility of each was conducted, but detailed evaluation can be made only after an architect has completed preliminary design plans for alternative schemes.

Prepare Cost Estimates

Detailed cost estimates were prepared in phases for each building, taking into account the austere financial picture, and presented in terms of material and labor costs.

Present Recommendations and Conclusions

Appropriate court personnel and liaison officers were advised in advance of proposed recommendations, with ample time provided for review and response. Recommendations were presented to all court and court-related personnel who would be affected by implementation, and to key personnel from implementation agencies, such as the Department of Public Works and the Bureau of the Budget. Scale models, photographs and graphics were used to simplify verbal explanations.

Recommend Implementation Process

For a major project involving several buildings, implementation time scheduling dovetailed recommendations within an integrated plan. Completed portions of the project were evaluated against predetermined objectives as well as established functional, performance and spatial standards and guidelines.

SPACE STANDARDS AND GUIDELINES

The standards and guidelines which comprise Chapter Three are believed to be the most comprehensive developed to date for court and related facilities. Architects and planners, in addition to administrators who may have responsibility on such a project for the first time, should find the guidelines of special usefulness in research and planning. Primarily applicable to court and related facilities, the data, nevertheless, can be adapted to guide the planning of law-enforcement and other facilities.

These unique standards and guidelines provide a measure against which preliminary planning can be evaluated for comprehensiveness and flexibility before proceeding to final design stages of renovation or new construction. By applying to local conditions the range of data, from the most basic to the less obvious,

facility administrators and planners should be able to construct a composite of required spatial and other standards, according to facility. The standards and guidelines also will be useful as a check on required standards in final plans before the start of actual renovation or construction.

A table was prepared for each courthouse facility category* summarizing space standards by sq. ft. of useable floor space per person, based on activities performed. Each table lists participants involved in a major court function, activities performed, other people involved in the activities performed, furniture and equipment necessary for the performance of those activities and total net floor area required per person per activity, broken down into furniture/equipment area and circulation area. (Furniture/equipment area includes net area occupied by the person using the furniture/equipment in performing an activity. Circulation area can be defined as the minimum area needed around the furniture/equipment for movement of people, furniture and equipment within the overall floor area). To convert net floor area to gross floor area -- including mechanical and electrical equipment spaces, public elevator, staircase, toilet and corridor spaces, janitorial and building supplies storage spaces, and external wall areas -- an additional 50% of net floor area has to be added. For example, a courtroom with 1,200 sq. ft. net useable floor area would have an equivalent 1,800 sq. ft. gross floor area. In addition to space standards, lighting (type and intensity), acoustical (background noise level and average absorption coefficient) and thermal (effective temperature in summer and winter) standards also were included in the summary table. Degree of accessibility and security classification have been evaluated and included. A sample space standards table is shown in Table 1.

MANPOWER PROJECTION AND PLANNING

Projection techniques are probabilistic, not determinate; results have only a likelihood, not a certainty, of being accurate. Unless plans based on projections

* Courtrooms and hearing rooms; judges' chambers; jury facilities; grand jury facilities; administrative and staff offices; prisoner holding facilities; and other court-related facilities.

JURY FACILITIES: DESIGN STANDARDS

ACTIVITY	PEOPLE INVOLVED	FURNITURE/ EQUIPMENT	AREA			LIGHTING			ACOUSTICS		SPACE	ACCESS/ SECURITY
			FURNITURE/ EQUIPMENT (sq. ft.)	CIRCU-LATION (sq. ft.)	TOTAL (sq. ft.)	LIGHT LEVEL (ft.-candles)	TYPE	COLOR CONTRAST	BACKGROUND NOISE LEVEL	AVERAGE ABSORPTION COEFFICIENT		
Entry, and registration	Summoned jurors, jury clerks	Lounge chairs, side tables, registration counters/ office equipment	4–5	4–5	8–10	20–30 supplement-ary lighting	warm, direct or semi-direct	High	NC 40–50	0.30–0.40	Public space, jury impaneling space, courtroom	Public/minimum
Assembly and talking	Summoned jurors, jury clerks	Chairs, side tables, informal tables/reading materials	6–7	6–10	12–17	30–40	warm, direct or semi-direct	Medium	NC 35–45	0.30–0.40	All jury assembly spaces	Restrictive/ limited
Watching television	Summoned jurors, jury clerks	Chairs/television, screen, slide and movie projectors	4–5	7–11	11–16	15–30	warm, diffused	Subdued	NC 40–50	0.40–0.50	General assembly space	Restrictive/ limited
Reading, writing	Summoned jurors	Tables, chairs, bookshelves/ books, journals	10–12	10–13	20–25	40–60	daylight, direct	Medium	NC 30–40	0.30–0.40	General assembly space	Restrictive/ limited
Working	Summoned jurors	Table, chair, booth/ telephone	13–16	12–14	25–30	40–60	daylight, direct	Medium	NC 25–35	0.30–0.40	General assembly space	Restrictive/ limited
Recreation	Summoned jurors	Tables, chairs/writing materials	6–7	7–11	13–18	30–40	daylight, or warm, direct	High	NC 40–50	0.30–0.40	General assembly space	Restrictive/ limited
Dining	Summoned jurors, jury clerks, court officers, jurors	Tables, chairs/utensils	6–7	9–13	15–20	20–30	warm, semi direct, or direct	High	NC 40–50	0.30–0.40	General assembly space	Restrictive/ limited
Eating (snacks)	Summoned jurors	Tables, chairs or stools/ food, drink, cigarette machines	4–5	4–5	8–10	20–30	warm, direct or semi-direct	High	NC 40–50	0.30–0.40	General assembly space	Restrictive/ limited
Jury panel assembling	Selected jurors, jury clerk, court officer or bailiff	Jury clerk's counter, jury list, jury wheel	–	8–10	8–10	30–40	warm, direct or semi-direct	High	NC 40–50	0.30–0.40	General assembly space	Restrictive/ limited
Impaneling - selection	Selected and impaneled jurors attorneys	Chairs	4–5	4–5	8–10	30–35	warm, dir. or semi-dir.	Medium	NC 30–40	0.30–0.40	Jury panel assembly space	Private/ limited
- vol. dirs.	attorneys	Table(s), chairs/jury list	15–20	25–30	40–50	35–50	warm, dir. or semi-dir.	Medium	NC 30–40	0.30–0.40	Public or attor-ney's entrance	Public or private/ limited Private/ limited
- clerical	jury clerk	Table, chair/jury list jury wheel	15–20	20–25	35–45	35–50	warm, dir. or semi-dir.	Medium	NC 30–40	0.30–0.40	Jury panel assembly space	Restrictive/ limited
Deliberating - entry	Impaneled jurors, bailiff	Coat closet, couch	2–3	5–6	7–9	20–30	warm, semi direct, or diffused	High	NC 35–45	0.30–0.40	Courtroom	Private/ maximum
- toilets	Impaneled jurors, (men and women)	Water closet(1) and wash basin (1) each for men and women	8–10 per toilet	18–20	26–30	20–30	daylight, or warm, semi-direct, or direct	High	NC 40–50	0.16–0.25	Entrance lobby of jury delibera-tion spaces	Private/ maximum
- deliberation	Impaneled jurors	Table, chairs/drinking fountain	6–8	12–15	18–23	40–60	warm, direct or semi-direct	Medium	NC 30–40	0.30–0.40	Entrance lobby	Private/ maximum

THERMAL STANDARDS: 72°-74° ET (summer), 69°-71° ET (winter)

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allow for contingencies, the effectiveness of judicial facilities over their lifetimes cannot easily be maintained.

Bearing on this, Chapter Four presents approaches found useful in developing a method to project judicial facility needs. Included are underlying assumptions, steps in a systematic analysis and sample procedures.

Manpower needs must be estimated with accuracy in terms of number, education and capability required of workers at a given future time and place. Manpower estimates typically are derived from theoretical analyses of programs and policies, from a composite picture of employees' capabilities and from a general organization experience in the realm of manpower and work output. Manpower planning estimates usually involve comparing future requirements to projected supply to meet those requirements. Necessary staffing for projected new policies and programs must be added, and attrition expected within existing manpower supply subtracted in arriving at reasonable estimates. The final result should be a series of action plans designed to fill anticipated projected gaps between requirement and supply.

In approaching any manpower planning study, the analyst first must have a thorough understanding of overall manpower flow into and out of an organization, the uses being made of current staff and existing manpower problems. Data gathering and subsequent analysis must account for the expected effects of future changes in program and policy. The resulting manpower plan must be an amalgam of currect operating conditions, adjusted to current optimum manpower use and contemplated changes in the system.

Manpower analyses, beyond fostering development of appropriate recruitment schedules and techniques, are prerequisite to formulation of adequate space requirements. Because facility renovation and new construction often is bound up in political considerations, and because of restrictions upon municipal budgets throughout the country, estimates of future manpower requirements for the courts and related facilities must be performed well ahead of the time space is needed for expansion. In studies of court and law-enforcement facility space requirements, manpower analyses help give direction to research, evaluation, analyses and final recommendation.

Manpower Study Methodology

The manpower study methodology described in Chapter Four provides a basis for undertaking similar studies at other locations.

Define Scope and Approach

The program director should meet initially with manpower planners to define scope of involvement. In a study of several courts, manpower analyses and projections may be required for each court. Time limitations placed on manpower studies within the overall program schedule will determine depth of investigation and extent of detail in findings. The accuracy and detail desired for the manpower study depends on the accuracy and detail required of the overall program. In arriving at this determination, general space conditions can be a guide. For instance, when the amount of available space is thought to be much greater than required for future court expansion (but poorly allocated), the degree of accuracy of manpower projection would not be so critical as when available space is at a premium, or when a new court building or complex is being planned.

Conduct Orientation, Background Studies

In analyzing court personnel requirements, the manpower study team should concentrate its efforts on the smallest possible working units. Manpower analysis should begin with an introductory visit to each court and its ancillary agencies. All available reading material relating to facility functions and activities should be obtained and studied. Budget documents and personnel rosters, both current and historical, should be revealed as to manpower levels, functions and staffing mix, and previous studies, if any, should be examined.

At this juncture, interviews with one or more senior staff members in each department or unit should be conducted, structured to allow the manpower analyst to develop a closer insight into activities and to clarify questions arising from analysis of written materials. Additional sources of information can be solicited, including historical workload statistics of both a general and specific nature. Past position justification memoranda are important elements of this early-phase research.

Continued analysis of information gathered will help to answer whether activity questionnaires need be distributed to obtain a detailed breakdown of how individual employees use their time.

Staff vacancies should be reviewed and analyzed as to their necessity and their likelihood of being filled. Historical growth of each department or unit should be analyzed, and an attempt made to define reasons for growth. Present staff use can be determined through discussion, observation and written

surveys. Ultimately. the principal factors incumbent upon future staff requirements can be isolated and evaluated as to their continuing relevance. These factors then can be translated into a basic profile of future staff requirements by employee classification.

Because determination of spatial and environmental requirements is function-oriented, this initial examination should begin to reveal major conflicts, delays and problems which, if pinpointed, may significantly affect manpower requirements. Eventually, by establishing functional relationships among major components of the judicial system, manpower planners can assess departmental priorities and relative input of each department in handling and disposing of cases.

Compile and Analyze Research Data

A manpower projection questionnaire can be used as an aid to:

1. Identify current staffing levels for all classes of employees.
2. Evolve staffing levels from recent past (say, five years) to present.
3. Determine rationale upon which requests for additional manpower are and will be based.
4. Determine functions and responsibilities for each manpower classification.
5. Investigate and evaluate staff productivity and utilization.
6. Evaluate value and capability of departments or units, and determine whether any can be consolidated.
7. Identify duties which can be performed by other classes of personnel.
8. Discern limiting factors on staff size, such as financial, spatial, procedural, time and legal.
9. Obtain work schedules for assessing amounts of sick leave, vacations, holidays and shift coverage.
10. Incorporate in manpower requirements anticipated effect of proposed legal and procedural changes on court administration.
11. Define plans for internal procedural changes.
12. Define existing case or work backlog.
13. Project future caseload and determine how it will affect staffing of units or departments.
14. Suggest improvements in staff utilization.
15. Make advance forecast of staff and other requirements, with relevant rationale.

When appropriate, questions should be raised concerning the location of a department or unit within a facility. Departmental space assignment in court buildings should be based on factors beyond mere operational efficiency; allocation should refer to legality, propriety and other factors affecting the administration of justice. By observation, interviews and measurement over a period of time, standards on work output or performance level can be established for assessing staff capacity.

Establish Assumptions

Legislators, administrative judges and court administrators, as well as attorneys involved in judicial reform, can shed light on factors influencing anticipated procedural and other changes, and their probable effective date. The highest administrative office of the state courts should have in-house management capability to supply such essential information to manpower analysts and space planners to assure uniform and complete assumption. However, certain general assumptions may be applicable in many states where court and related facilities and manpower studies are being contemplated:

- A trend toward greater centralization of judicial and law-enforcement facilities, and more decentralization of court-related social agencies to local communities where most "clients" of these agencies live and work.
- Increased emphasis on treatment and rehabilitation of prisoners, in particular, those with psychiatric problems.
- Removing from the courts so-called "victimless" offenses which can be handled and processed by social and administrative agencies. Such offenses include prostitution, some forms of gambling and housing-code violations.

Another significant trend affecting manpower studies is an increasing application of sophisticated management tools to expedite case dispositions, in part resulting from legislative rulings limiting time between arraignment and trial.

The growth of computer technology and electronic data-processing for information storage and retrieval will mandate more specialized personnel, including programmers, analysts and operators. Even now, the courts are relying on planners and coordinators to effectively marshall these resources in managing judicial, administrative and other operational procedures.

Simplification of court procedures, encouraged by case overload and improved management techniques, is another assumption vital to manpower projections. Probate and estate case procedures, for example, are being simplified, with

adequate legal safeguards, to relieve the courts of the need to process non-judicial matters and those in which a determination can be made without court intervention.

Among factors requiring detailed evaluation at the local level are the specific calendaring and case assignment system adopted by the court, possible consolidation of trial courts and major delays in case disposition. Even when trends can be pinpointed, and "adjustment factors" should be used to accommodate other potential legal and procedural changes, alternative projections being made for each assumption.

Project Manpower and Space Needs

Manpower projections, based on research and assumptions, can be either short- or long-term. Short-term projections for five years usually can be calculated very accurately, based on existing and anticipated workloads, economic conditions and the political influence of the agency. The longer the period allowed for manpower projection, the more variable will be the assumption. However, because estimated useful life of a building today is fifty years -- especially so for public buildings such as courthouses designed and erected for a specific need -- it is essential that projections, within known possible future administrative and operational changes, be made for a long term-period of 30 to 50 years and be reviewed periodically every five or ten years.

In subsequent space projections based in large part on projected manpower requirements, each personnel classification should be assigned a space standard per person in square feet. Combining total work area with departmental spaces, such as conference rooms, storage spaces and visitors' spaces, circulation space, and staff amenities, such as restrooms and lunch rooms, total space requirement for each department can be accurately computed. Separate projections are usually conducted for courtrooms and ancillary spaces.

COURTHOUSE SECURITY

In a courthouse, security encompasses deterrence, detection and limitation of damage. Effective security design aims essentially to deter potential threats to the safety of persons and facilities within the facility. The more effective

the deterrence, the lower the incidence of security problems. Where deterrence fails -- and it will, at least when persons are intent on causing trouble -- it remains for security design to detect threats rapidly and to signal the attention of those who can take appropriate action. If a bomb were smuggled into a courthouse, the earlier it is detected, the more safely the incident can be handled. Finally, a security design seeks to limit damage that may be caused by action following a threat. A building with a bomb emplaced, evacuated rapidly, safely and orderly without prisoner escape exemplifies damage limitation.

A strong threat to courthouse security is inherent, in the broadest sense, among those who harbor disregard or contempt for the law and its instruments. Threats of this kind, whether arising from groups or individuals, may take the form of well-organized, planned actions or more spontaneous personal reactions. A threat may contemplate action related to a purpose within a courthouse (i.e., escape, revenge, intimidation of a judge, prisoner, or jury), or it may embody broader social or political implications (i.e., a bomb threat against "the establishment"). A threat may be directed at a specific courthouse situation (for an obstreperous witness, a bullying attorney), or at a simple criminal goal (theft of personal property or office equipment). Whatever the purpose of such threats, counteracting security measures, unless integrated with a courthouse-wide effort to engender respect for the processes of justice, almost certainly will be self-defeating.

Primary security considerations in all courts include:

- Safe storage of records
- Privacy of certain records and proceedings
- Easy access to public records
- Protection of judges and other court personnel from unnecessary exposure to risk
- Maintenance of personal safety for all persons in the courthouse
- Isolation and protection of deliberating juries
- Safety of witnesses
- Safe occupancy of buildings

Spaces requiring security analysis include courtrooms, offices with public access, records rooms, private offices and chambers spaces, public corridors and public waiting rooms.

Courthouse security is achieved by combining specific measures into a comprehensive system. Because most security measures overlap one another as alternate choices, they can be implemented with some freedom. The following categories illustrate this range of choice:

- Renovating existing facilities as an alternative to new construction.
- Increasing staff and modifying their duties as operational alternatives to architectural modifications.
- Implementing technological systems and devices as alternatives to staff increases.

The eventual choice will be subject to constraints such as initial operating costs, propriety, legality, effectiveness of response, adaptability to change, administrative control and timeliness.

The security function should be an important determinant of courthouse design and operation. Although different types of courts and court functions have differing security needs, the methodology of security system design for all can be similar. By selecting architectural, operational and technological procedures appropriate to the function and security needs of all spaces within a courthouse, the desired level of security can be shaped. Constraints upon this model will include factors of:

- Legality and propriety
- Capability of current technology
- Availability of trained manpower
- Feasibility of architectural methods
- Comprehensive costs of construction and operation

Comprehensive Security Analysis

Security systems analysis is fundamental in assessing and improving security in existing courthouses. Four steps constitute this procedure:

1. Threat analysis: assessment of threats to people, facilities and functions of a courthouse.
2. Space use analysis: determination of the use of space by persons (circulation) and for functions.
3. Application of security measures: reduction of total risk.
4. Evaluation: comparison of alternative solutions for effectiveness, cost and impact on operations.

The security of persons and functions in a courthouse is inversely related to their exposure to risk: to increase security, reduce exposure. To reduce exposure, two categories of space are minimized: 1) functional spaces exposed to risk and 2) circulation spaces exposed to risk. Functional spaces within a courthouse are areas denoted by the functions taking place in them, typified by a courtroom and its ancillary spaces or judges' robing room, bench area or chambers. Circulation spaces, on the other hand, are most directly defined as those spaces, such as corridors, elevators and stairs, providing paths of movement between functional spaces.

Effective security probably is defined best as the absence of security breaches in the face of security threats. Suppose, for instance, that a courthouse is troubled by consistent theft of office and personal property over a number of years. Suppose further that on a particular date a security system is made operative, including corridor patrols and a closed-circuit television surveillance system, which, within a month, reduces the incidence of successful thefts and maintains that level. It seems reasonable to state that the system is effective against that security threat to a point where the likelihood of theft has become satisfactorily low.

Now consider a courthouse which has never been the victim of attempted theft and in which no special anti-theft security measure is employed. It is not reasonable to say that there is an effective system here -- there simply isn't any threat. In each courthouse the result is the same -- no problem with thievery. The relative cost of security against theft compares to the relative intensity of that particular security problem.

Predictions concerning the effectiveness of a proposed security system must take into account the probable performance of a system in the future, not just its actual past performance. Thus, potential threats and probable effectiveness against threats are of interest. Largely, reliance must be placed on past experience, projecting similar situations as accurately as possible upon expected future conditions. In addition, it is convenient to make a distinction between performance and effectiveness. As a rule, performance is taken as the quantitative measure of how a system operates, while effectiveness is taken as the relative measure of how realized performance compares to desired performance.

A courthouse security system can be synthesized as a rational selection of constituent measures from feasible alternatives. To make an objective selection

it is necessary to determine the effectiveness of different measures in comparable terms and to assess, on a common basis, the true cost of their use by analyzing all significant qualitative factors in an appropriate, quantifiable way. It should be clear that, because this is an optimizing process, its outcome is no better than its inputs allow, and that alternate security measures must be well-conceived in the first place.

Many court administrators have an opportunity to make use of architectural security measures when a major renovation or new construction program is to be undertaken for their court buildings. At such a time, architectural approach to security is more desirable than the manpower approach even assisted by technology. Reasons include cost advantages, performance improvements, a more efficient use of overall space and a minimal qualitative penalty. Many features of architectural security are simply those of effective design for the functions of a court and allow also for the inevitable changes in plan that accompany changing functional and procedural court requirements. Comparisons between different architectural means to achieve courthouse security can be made using a cost and effectiveness evaluation method, as can comparisons between different operational methods. In general, where architecture or operations are alternatives, the architectural method will have a higher and more constant effectiveness, and is preferable. In situations when it is possible to modify operational procedures, including the installation of security equipment, a cost and effectiveness comparison of different methods is necessary.

A COMPREHENSIVE INFORMATION COMMUNICATIONS SYSTEM

A comprehensive information communications system (CICS) for courts and related law-enforcement facilities can be defined as a comprehensive arrangement of essential information within a logical network of relationships, each contributing toward improving the administration of justice.

In any judicial facility complex, CICS is a composite of several sub-syste

- An integrated network of signs and other visual devices to direct persons from outlying areas to a facility complex, to a building within a complex and a final destination within a building.

- Public information communications systems within the court complex that can provide to qualified persons as expeditiously as possible all essential information relating to a case.
- Information input and retrieval systems that store all relevant historical and current case information for automatic and instantaneous retrieval.
- Security communications systems that provide optimum security for court buildings at minimum expenditure.

Integrated Network of Directional Signs

A series of simple, yet well-designed signs and maps in major subway stations, on subway trains and buses and on local streets is recommended as an initial step in providing a directional sign network. This design sense should carry over to the planning of summonses, warrants and other court legal documents and forms. Documents requiring the summoned person to appear in court should include specific directions to the appropriate courtroom or clerk's office in a court building within a judicial complex.

It would be very useful to include on such forms a simple map of the judicial complex and its geographical relationship to major public transportation routes, major roads and available parking areas at or near the complex. An identical map in larger scale could be placed at strategic locations near the judicial complex to orient and direct persons once in the area.

Public Information Communications Systems

Many persons, experience shows, wander from space to space within a facility trying to determine where their cases are being heard. To repair this defect in communication, a series of signs in the lobby should direct the public to major parts of the building (for example, to the clerk's office and courtroom floors), as well as to an information center where clerks on hand would be equipped to provide case information. Automatic visual display units similar to those used at airport ticket counters could be used in the courts to retrieve case information in response to public inquiries. Such a system could provide case number, litigants' and attorneys' names, case status, hearing date, courtroom number, presiding judge, decisions in similar cases, and so on.

An extension of the lobby sign system on each floor and an information and security station near the elevator lobby on each public floor would provide a much-needed service.

The information communications system, used for each courtroom would depend on overall method of court operation. Where a master calendaring system is used, it is recommended that the calendar courtroom have a sizable public waiting area equipped with a large information display similar to those used at main passenger waiting lounges in airport concourses -- but design here as an integral part of the building environment, so as to preserve dignity appropriate to judicial spaces. This display would show cases ready to be heard in chronological sequence during the morning and afternoon court sessions (when the court calendar can be split into two sessions). As each case is disposed by the court, information relating to it would be removed automatically by computer to provide a continuous updating of cases throughout the day.

For courts using individual calendaring, a smaller posting device, either a closed-circuit television display unit or a three-line modular flap unit, could be installed outside each courtroom to display information pertaining to the case then being heard in that courtroom, as well as two or more ready cases to follow.

To obtain accurate information on average time per type of case (hearing and trials of both misdemeanor and felony cases), detailed time studies of all kinds of cases over an extended period of time, and possibly simulation studies made through computer programming, would be necessary.

In the master calendar courtroom where adjournments are granted and dates for subsequent appearances are determined by the judge, the clerk of the court should have a visual display unit with two-way operator-computer communication through a typewriter keyboard (CRT terminal) which would supply, on demand, information on the first available date and approximate time and courtroom number for the court to hear the adjourned case. When the judge determines a date, time and place for the case, a card printout would be produced automatically by the machine as a reminder for the litigant and his attorney of their next appearance in court.

The rare request for an adjourned date for a trial or hearing can be referred to the clerk in the master calendar courtroom who would seek the necessary information for the clerk in the trial and hearing courtroom. An alternative approach would be for the judge in the trial or hearing courtroom to return the case to the master calendar judge for rescheduling.

Information Input, Retrieval and Display Systems

Automatic visual display units or CRT terminals could be installed in chambers and offices for instant information retrieval during case preparation and processing by judges, probation officers, prosecuting attorneys, legal aid attorneys and other appropriate court personnel. Information relating to the status of a case, the time and place of next court appearance and prior judicial actions could be retrieved on demand.

Initially, a small number of units could be positioned centrally in strategic locations for sharing by several persons or departments. As an alternative use, department personnel requiring specific information could phone an operator at each unit location who would request the information from the main computer for distribution.

For legal research and planning, the researcher may require information on, say, the average time elapsed between arrest and sentencing for a specific type of felony case in a specific city; or he may desire information on major causes in delays on the work output of judges for estimating the number of judges needed to reduce case backlog to an acceptable minimum. To research such information manually through case files or in a library could consume thousands of man-hours -- and still be incomplete.

Video-tape is especially useful for recording depositions from witnesses who are old or ill, or whose professional obligations limit their time to serve as witnesses in court. A video-tape system approved and adopted by the courts also could be used for security surveillance, to record physical evidence and to provide trial procedures to juries on request.

Video-tape system components to record a typical court proceeding are a multi-track video-tape recorder, a recorder monitor, several high-resolution, low-light-level cameras, a special-effects generator for using split-screen techniques, remote control pan heads for one or more cameras and, where not already available in the courtroom, a sound system consisting of four to six microphones and a quality pre-amplifier.

In multiple courtroom facilities, a central monitor room serving all courtrooms is more economical, efficient and promotes better security than one monitor room per courtroom.

Regardless of the recording system adopted, it should be possible to input the recording of court procedings directly into a computer, and to retrieve

the transcript as a printout. Multiple copies of the transcript can be produced quickly, when compared to the time required for manual transcript typing.

A standard 24:1 reduction ratio in microfilming can result in more than 95% storage space saving. Documents reduced to microfilm size can be easily handled by relatively inexpensive equipment and stored and used in a central records library containing millions of documents. Such a library would protect record integrity and could result in considerable savings in information search time. An inexpensive duplicate set of microfilm documents could be stored in a remote safe location.

Security Communications Systems

All security communications systems installed in court complexes should be monitored from a central security station and, if necessary, from a number of sub-stations. In multi-story court buildings, there can be a security sub-station on each floor or group of floors, with the central station strategically located on a floor most convenient to the sub-stations.

In a criminal trial courtroom, with its need for special security, a communications link to a central security station or sub-station is essential. A push-button located at the judge's bench and the clerk's or bailiff's station would be used to activate in the security station a control panel alarm and light, signifying location of the disturbance. By depressing the lighted button (if circuit completion does not open a communications channel), a security officer would listen to courtroom activity. Depending on his evaluation of the urgency of conditions, the officer would begin a plan of action. In situations of extreme emergency when instruction to persons in the courtroom is necessary (for example, evacuation directions during a bomb threat), the security officer would depress another push-button to speak directly over a loudspeaker system mounted in the courtroom.

It is important to stress that proper space planning for security prior to final court facility design is more effective as a security risk deterrent than indiscriminate selection and installation of costly security equipment. Such equipment should only be used to enhance security when space planning concepts alone prove to be inadequate.

Other security communications options between courtroom and security

station include:

- A simple two-way intercom telephone between judge, clerk or bailiff and the security station.
- An inter-connected alarm-telephone system which activates an alarm when the phone at the judge's bench or clerk's station is off the hook.
- A transistorized radio alarm unit the size of a cigarette lighter which can be carried in a pocket and which, when depressed, would activate an alarm at a remote security station. If necessary, this unit also can provide two-way intercommunication with the security station. A similar-size unit with an alarm that can be activated by abnormal physical movements also is available, but is much more costly.

If a room separate but adjoining the courtroom is needed for detaining a disruptive defendant during the trial, assuming its legal acceptability, an audible communications system or a closed-circuit television or videotape system would be required for the defendant to hear or see the court proceeding.

Court and law-enforcement facilities can be television-monitored for security much in the same way as are modern multi-story apartment buildings. Television surveillance in court buildings can help detect possibly suspect persons at entry and assist in locating a prisoner or detainee during an escape attempt. Such a system might use a camera strategically located on each courtroom floor, with a panel of television receivers centrally located in the security control room on each courtroom floor or on the entrance level, or both. Unusual disturbances in public spaces on each floor could be detected visually and audibly, and measures taken to restore order.

SPACE MANAGEMENT APPLICATIONS

The space management process, when applied to reorganization and renovation of existing facilities, must in early stages assess structural and other constraints and variables for their often significant effect on project costs. Consider, for instance, conditions that weigh upon expanding criminal court facilities in existing buildings:

- Would structure and layout of building services hinder secure prisoner movement?
- Would spaces now used for receiving and transferring prisoners be adequate for expanded facilities?
- Is existing vertical transportation service suitable for increased use?
- Are floors of sufficient area to permit low-cost construction of separate secured prisoner access corridors to courtrooms?
- Will proposed construction impinge on operations of other facilities whose occupants may object to the proximity of criminal court operations?
- In the case of expansion into a multi-story non-court building, who are the tenants on non-court floors and will they object to criminal court operations in the same building?

With few exceptions, structural constraints bear critically upon renovating an existing building for court use. A contemporary office building selected for court expansion probably was constructed economically with spaces between columns of not more than 25 feet -- a dimension that at first may appear to be too restricted to contain a trial courtroom without obstructing public and even participant vision of all court proceedings. Courtrooms smaller than traditional size, which are increasingly becoming the rule, require space of about 30 ft. x 40 ft., or 1,200 sq. ft. Competent space planning can resolve this seeming incompatibility between space and function.

Four structural bays, each 20 ft. x 20 ft., would provide total courtroom area of 40 ft. x 40 ft., a more-than-adequate space for routine judicial proceedings. Columns at the center of the space pose the biggest problem. A solution developed for an office building in New York City is to locate the courtroom judicial area, including judge's bench, witness box, clerk's station and attorneys' and litigants' tables, within a structural bay, 20 ft. x 20 ft., with an additional 5 ft. to 10 ft. behind the judge's bench in an adjoining bay. Thus, the central judicial area is surrounded on three sides by half to three-quarters of adjoining bays, one bay for the jury box, another for the jury panel prior to impaneling, and the third for spectators. The four columns, still within the courtroom, but located on the periphery of the judicial area, help to spatially define adjoining jury and public spaces. Unobstructed views are maintained at all times for public and participants.

Another structural constraint commonly encountered in court renovation projects is limited floor area, a factor often related to location of the service core within the building. Service cores in office buildings with floor areas of

less than 5,000 sq. ft. usually are located on one side or at a corner of the building to maximize rental space on each floor. A benefit to the renting agent, however, may be a detriment to the court facilities planner.

To convert such a building into a facility to process criminal or family court cases involving prisoners or detainees, secured access must be provided. Structural constraints all but rule out constructing a separate security access corridor for prisoners on courtroom floors. For maximum security, prisoners may have to be transferred from an upper- or lower-floor detention facility by a private staircase located between courtrooms.

But the building in which the service core limits rentable floor area may work to the advantage of the court facilities planner. A service core constructed five or more feet from the wall or corner could serve as secured access along the building perimeter to the courtrooms on the same floor, assuming no other prohibiting structural constraints and depending upon existing use of spaces adjoining the core.

Structural capability to support heavier loading of renovation is yet another constraint to be weighed. The addition of computer equipment, expanded law libraries, and mezzanine levels within existing two-story building spaces to accommodate new courtrooms and ancillary facilities are just some of the factors which may be relevant here.

In court buildings constructed 20 to 30 years ago -- and in some built more recently -- courtrooms were conceived as large, two-story spaces, intended, perhaps, to convey "dignity" of the judicial process. For the most part, these facilities lack human scale. One solution formulated to better utilize such space is to construct a mezzanine floor over the public area in each large courtroom, leaving the two-story ceiling only over the judicial area. The effect is to retain a more formal setting in the judicial and participant area, separated visually from the public seating area, which would take on a scale more appropriate to its use.

Vertical dimension of a space is determined by floor structure and by service ducts and pipes within the ceiling space. A standard 9-ft. ceiling creates space inadequate for design of trial courtrooms. A judge's bench usually is about 18 inches above floor level to ensure that the judge's eye level when he is sitting is higher than that of a standing attorney who should not be able to view legal documents on the bench. A 6-ft. judge standing at the bench could

raise his hand to touch a 9-ft. ceiling. While a 9-ft. ceiling height is appropriate for the public seating area, the judicial area should have minimum ceiling height of 10 ft., 6 in. to 11 ft.. In a new building, service ducts and pipes could be housed along the perimeter of the judicial area and above the public seating area to allow a higher ceiling over the judicial area. Conditioned air, in this case, would be supplied through registers on the side of a dropped ceiling along the perimeter of the judicial area.

In planning multiple courtrooms, consideration should be given to the location of public waiting spaces. While it is essential to have major public adjoining elevator lobbies with a central information facility, it is equally important on large-area floors to decentralize the waiting function to spaces near remote courtrooms. Interesting spatial variations can be created by introducing, in relatively narrow public access corridors, larger waiting spaces equipped with fixed, sturdy public seating.

A larger public waiting area is essential adjoining arraignment courtrooms. An appropriate space management concept here may be to retain an average-size courtroom (1,200 sq. ft.) for conducting arraignments. Only current and following case participants and some spectators normally would be present. Participants in cases lower on the arraignment calendar would remain in the waiting space until called, thus minimizing excessive noise, movement and confusion common to large metropolitan arraignment courtrooms. If necessary, an intercom system could be installed to permit the courtroom clerk to announce in the waiting space names of parties next to enter the courtroom.

COST PLANNING

A well-conceived, phased implementation scheme, incorporating proven scheduling techniques, not only minimizes disruption to the courts but also enhances project feasibility for agencies responsible for implementation.

Having developed and evaluated the feasibility of program recommendations relating to solving facility problems in a court building or complex, the next essential step in planning is to structure phased implementation. Consideration must be given here to constraints such as availability of implementation funds,

maximum disruptions which can be tolerated by the courts during renovation and construction and availability of the space for renovation.

In a facility renovation program, phased implementation usually begins with relocating personnel or records to another location, then renovating the vacated space when funds become available. It must be stressed that renovation work should not be carried out piecemeal, but as an integral part of a comprehensive master plan for that building or for a court complex. Given large case backlogs and the financial crisis prevalent in large U.S. metropolitan centers today, it is essential that renovation projects be phased and scheduled to minimize disruptions to court operations. When long-term projections are required in urban court complexes and when renovation involves several buildings, then phasing becomes critical, geared to the availability of building spaces.

Municipal financial crises confronting principal cities mandate that major construction and renovation based on study recommendations be implemented according to a priority determined jointly by the court with supervision responsibilities and by the local agencies responsible for implementation. Persons responsible for conducting a facility research and planning program have a prime responsibility to act as liaison between the court and agencies responsible for implementation, in conveying planned project phases and priorities, according to urgency of need and project cost.

Project priority should be discussed with the presiding justice and administrative director, after program presentations to user departments and city agencies. After agreement has been reached with the court, a priority projects list with preliminary cost estimates should be forwarded to the local public works, budget and related implementation departments for incorporation in the annual capital budget.

Providing adequate court facilities is, in most states, the responsibility of local counties, each governed by a board of supervisors, freeholders or county commissioners. Most large construction projects are funded through bond issues which are passed by a vote of the local community. If a bond issue for construction is voted down by the community, the project usually is dropped or shelved until a subsequent bond issue is voted. Obviously, such a funding system can result in an uneven distribution of adequate facilities -- the case more often than not.

When state governments have assumed responsibility for providing judicial facilities within their borders, in Hawaii and Alaska, for instance, facilities are more equitably distributed and construction and architectural treatment tends to be of overall high quality. Experience shows that fewer court buildings are required when facilities are consolidated and located on more strategically planned sites, according to a comprehensive statewide plan. Such obvious advantages, including as well long-term construction, operation and administrative cost savings, may encourage more state governments to support court facilities.

Budget Planning

For major city-funded construction projects it is essential to plan a budget at least five years ahead of required facility completion date.

A year will be needed to develop a project from conception to a level of established spatial needs. If the programming and planning phase is suggested by a funding agency, then additional time will be required initially to develop, prepare and submit a proposal for funding approval. After the court and related agencies have approved a project, the proposal will be submitted to the local public works and budget departments or equivalent agencies for review, budget approval and appropriation, a process which may consume another year.

The next step is to hire an architectural firm to develop plans and all necessary documents for submission to the building department for approval. Functional and spatial changes may delay completion of preliminary schemes, final detailed plans an working drawings and specifications. For large projects, this phase will take at least a third year. Construction of foundation, steelwork and superstructure will easily require another two years -- for a total of approximately five years.

Building Construction Cost Estimates

For renovation projects, feasibility of alternative schemes involves studies of structure, building services and equipment, and cost comparisons.

Cost estimates can be preliminary, based generally on unit cost per square foot gross or net, or detailed, based on accurate estimates of labor, material, fringe benefits and overtime costs.

In new construction, preliminary cost estimates, if carefully applied, can yield reasonably realistic results. In complex renovation of existing buildings, preliminary cost estimates usually are not accurate because of complexities which

may be encountered in demolition, construction and finishing phases. For this reason, most contractors will add to their estimates a high contingency sum -- 15% to 25% -- depending upon project complexities. Most cost estimates do not include architectural and engineering fees (4% for new projects over $15 million to 12.5% for projects under $100,000; and additional 2% to 3.5% for renovation projects). Not included either, in most instances, are the costs of moving furniture and furnishings, overtime, interest, taxes and legal fees.

PROGRAM ADMINISTRATION

Program administration, when it is fully effective, traces its root to pre-proposal planning prior to funding approval. It certainly must extend beyond final report submission -- for some studies the last heard of them -- to promoting before appropriate persons and agencies implementation of recommendations according to assigned priorities. Effective liaison, in fact, is a sometimes underrated aspect of successful program administration when it should be a prime obligation.

Proposal Planning Activities

A facility planning program generally is conceived by a court administrator, in collaboration with justices and court personnel, or by a consultant familiar with the local court system and its problems.

Court administrators in most jurisdictions being thoroughly familiar with local problems, can develop the scope of work required to recommend facilities adequate to achieve optimum operation and personnel work output. But, in some areas, particularly in large metropolitan centers, problem urgency and magnitude may suggest the need for engaging a consultant experienced in facility and operations management to assist in defining problems and program scope. A consultant should be required to conceive an action program for incorporation in a preliminary proposal submitted to the court administrator, facility planning committee members and others associated in significant ways with the proposed project.

Program conceptualization generally leads to a preliminary proposal outlining program goals and objectives, work scope and impact, proposed methodology and research procedures, time and staff needed and preliminary budget estimate, bases on a yearly or phase basis for the entire program. The preliminary

proposal, either a brief description or an outline, should be distributed for comment and criticism to all key personnel and consultants. Program scope and proposed staffing should receive special attention at the first meeting called to discuss the proposal.

Project Funding

If the response from a funding agency is favorable to an initial project proposal, meetings should be arranged between agency personnel, court personnel and the consultant (if available) to clarify problems that may have arisen since proposal submission, and to work toward submitting a full proposal. If federal funding is sought, then local matching contributions (varying from 25% to 50% of project cost) first will have to be committed.

If the consultant has been selected, even on a tentative basis, it would be beneficial for him to be included in program staffing discussions with funding agency personnel. Staff requirements at each stage -- research programming, planning, design, costing and presentation -- can differ markedly; for this reason, not all positions requested in the proposal should be full-time for program duration.

The kind and extent of matching funds will vary with project nature and scope. Research and planning grants usually require a 25% match, generally known as a "soft match", whereas grants for construction and renovation may require a 50% "hard match". Soft-match funds need not be cash but can be rental of office space, equipment and supplies cost or personnel fees or salaries. Hard-match funding is defined as cash provided by local agencies. Matching requirements are stipulated by each funding agency, depending upon the priority and emphasis the agency places on research, planning and construction. Generally, research and planning grants are easier to obtain than construction grants because many funding agencies are geared toward assisting local agencies in finding ways to solve local problems. Once solutions have been proposed, funding agencies expect local agencies to fund the major part of implementation.

For research and planning grants, courts can be expected to provide various services as grantee contributions. Consideration also should be given to having in-house court personnel assist program staff in legal interpretation of laws and formulation of assumptions for manpower and spatial projections.

Long-Term Considerations

An essential step a large municipality should take is to establish centralized coordination and control of data and information developed by consultants on similar projects. In this way, existing information can be distributed to consultants involved in further projects, minimizing duplication of effort.

With this consideration in mind, consultants should be required, as part of their consultant services, to train, in structured setting, in-house court and related agency personnel involved in court improvement projects. Such a procedure could result in local cost savings and help assure implementation of program recommendations after program work has been completed.

Office Organization

Commercial rental is costly and funding agencies usually require, where possible, that local agencies supply program space. Obtaining and planning office space, then having it partitioned and furnished, is time-consuming, especially when city agencies contract for this work. Potential union disputes and strikes in related trades could delay for many months completion of adequate working facilities. Consequently, planning for program offices should commence as soon as proposal funding has been approved and the courts have assigned space.

A major budget item is furniture and equipment. Beyond supplying general office furniture, a facility planning program office requires special furniture such as drafting tables, drafting equipment, model construction surfaces, equipment and supplies, reproduction equipment for printing plans and reproducing documents, a special "composing" typewriter for preparing presentation documents and, possibly, a mechanical punch and spiral binder for completing interim and final reports.

In funding requests, consideration should be given to the availability of equipment for reproducing and binding documents. Should conflict in the use of shared equipment be anticipated, equipment rentals might be more expedient, in which case, adequate funds should be requested for such costly items.

Typically, the only way of staffing a competent judicial facilities professional planning team is to assemble one for training, in which case, time must be allowed for orientation and training.

Developing Working Relationships

Before beginning research and data compilation for each department of the courts to be studied, it is essential to establish effective working relationships with departmental personnel. An effective technique is for the presiding judge of the courts or his administrative director to inform all department heads of the program and of need for cooperation by its staff. Each department head should also be requested to assign a liaison officer to work closely with program staff, and to serve, in general, as a resource person. The liaison officer should be aware of detailed departmental operations, personnel and space, and be authorized to speak on behalf of the department.

The value of liaison officers cannot be underestimated for a facility program which aims at maximum recommendation implementation. A major reason courts or other government agencies fail to implement recommendations contained in facility planning reports is a lack of user approval. Another reason for failure of implementation is ineffective communication and collaboration between program staff and user departmental staff, which can result in erroneous assumptions and unrealistic projections.

Collaboration between program staff and the court or department responsible for monitoring the program is essential for a number of reasons.

First, full support of the highest court involved, as well as the other related courts studied, heightens program effectiveness and eventual recommendation implementation.

Second, the court has a readily available resource -- the legal profession -- which program staff can tap for information.

Third, program staff should be directly responsible to the presiding justice or to the administrative director responsible for the operation and supervision of the courts being studied.

Working relationships between the program and the funding agency should be established through the court to which the program is responsible. However, with the agreement of the court, the program director should form working relationships with at least one top-level person in the funding agency to expedite preliminary and routine matters. While all formal correspondence relating to funding and policies would be channeled through the court, many funding agencies prefer to collaborate on an operational level directly with the program director. Agencies are interested in the progress of the program which the director normally can provide more readily than court officials.

Promoting A Program

The extent to which program recommendations are implemented depends primarily on their merit and feasibility. But, even the most obviously needed and feasible recommendations have to be promoted, often vigorously, by the program director and staff.

Promoting a program is a continuous process commencing before the program begins and going beyong submission of a final report to urge full implementation. In a judicial facility planning program, promotion may be required sequentially with a number of consultants and local government agencies: the space management consultant who is responsible for programming and planning; architectural and engineering consultants who are responsible for design, construction and supervision of implementation; and landscaping, acoustical, lighting and interior decorating consultants who are responsible for specifying environmental aspects of the facility. Municipal agencies often involved in the process are city planning, public works, transportation and the city building departments.

Promoting implementation also means conveying feasible solutions convincingly, so that basic ideas are clearly retained by the persons responsible for implementation.

Presentation of facility program recommendations take many forms: charts, plans, drawings, statistical tables, scale models, photographs, slides, renderings, films and graphics. But, in each case, the presentation has to be geared to the audience for which it is intended. For example, judges and court personnel generally interpret architectural and engineering plans only with difficulty. Experience has shown that architectural models, supplemented by photographs, graphics and slides, are an effective method of presenting space planning concepts to persons not conversant in these techniques.

During the course of a program, liaison and other departmental personnel will have communicated work progress leading to recommendations. A major reason for the presentation is to obtain general overall acceptance of recommendations from user departments of an entire building or complex of buildings, and to rectify conflicts or discrepancies in spatial relationships among the departments.

Presentations to the responsible court and funding agencies are important from the standpoint of information communication and public relations. Acceptance of the approach, concept and recommendations should be obtained before presentations

to facility users and city agencies. The court responsible for monitoring the program is interested in improved efficiency in the use of court and court-related spaces in its buildings; the funding agencies are interested in program progress and whether their funds are being spent in the best possible way to achieve objectives.

Presentation to the city agencies is especially important because the program director and the court have to convince these agencies -- have to "sell" the idea -- that renovation of existing buildings at a relative fraction of the cost of new building construction is feasible, and that the program has demonstrated beyond doubt the validity of this assumption.

Program Cost Planning

A facility program can be categorized into the following major functions, and approximate percentage of total program effort:

Functions	Approximate Weighted Percentage of Total Program Effort
Program Orientation	1
Background Research	3
Program Planning	8
Data Compilation & Organization	15
Analysis & Evaluation	25
Planning and Recommendation	15
Cost Analysis	2
Documentation & Presentation	20
Travel	2
Conferences and Meetings	2
Administrative & Editorial	7
	100%

The percentages of total project effort have been based on a weighted measurement, not solely on actual time spent for each function.

The low percentage accorded to program orientation and background research would be higher if the consultant's experience is limited or his access curtailed

in obtaining extensive court information, data and reports. The major functions of data compilation and organization, through documentation and presentation, account for approximately 75% of program effort. Of the remaining phases, it should be stated that program planning, administrative and editorial functions are continuous throughout the program. Secretarial functions, which can vary considerably according to project, were not considered for the above list.

A CONCLUDING WORD

An underlying theme throughout the handbook on which this summary is based is that every space management study of court and related facilities must strive to be as comprehensive as funds and imagination permit. What may be only implicit in the foregoing discussion is the need for more studies of an even broader scope than was possible in the New York program upon which the handbook was drawn. Much greater emphasis should be places in subsequent undertakings of this kind on the wider goals of court management of which, in the final analysis, space management can be considered only a vital component.

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A LISTING OF PUBLICATIONS OF THE

NATIONAL INSTITUTE OF LAW ENFORCEMENT AND CRIMINAL JUSTICE

by Dr. Michael F. Wong

1. A series of eight monographs on the Reorganization and Renovation of Courthouse and Related Law Enforcement Facilities, issued in October 1971 under the following titles:

   "Space Management Concepts and Applications"
   "Space Management Methodology"
   "Space Standards and Guidelines"
   "Manpower Projection and Planning"
   "A Systems Approach to Courthouse Security"
   "Space Management and Courthouse Security"
   "A Comprehensive Information Communication System"
   "Program Administration and Cost Planning"

   The monographs, containing information gathered from more than thirty states and reporting the findings of space management and security studies, have been incorporated in the publication, Space Management and the Courts -- Design Handbook. (See below.)

   Single copies of the monographs are available at no cost from the National Criminal Justice Reference Service (NCJRS), Law Enforcement Assistance Administration, Washington, D. C. 20530.

2. Space Management and the Courts: A Summary. This publication summarizes the major ideas of the Design Handbook. Single copies are available at no cost from the National Criminal Justice Reference Service (NCJRS), Law Enforcement Assistance Administration, Washington, D. C. 20530. Additional copies may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

3. Space Management and the Courts -- Design Handbook. In early 1973, single copies will be available at no cost from the National Criminal Justice Reference Service (NCJRS), Law Enforcement Assistance Administration, Washington, D. C. 20530; and additional copies may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

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