

Planner's Report
St. Louis, Missouri

Hellmuth, Obata and Kassabaum, Inc.
Site Planners

U.S. Department of Housing and Urban Development

Operation Breakthrough

**H.U.D. Operation Breakthrough
Department of Housing & Urban Development
Washington, D.C.**

**Laclede East & Laclede West Sites
St. Louis, Missouri**



Prototype Site Developer

Millstone Construction, Inc., &
Millstone Associates, Inc.
St. Louis, Missouri

Boeing Aerospace Group
(Division of Boeing Company)
Seattle, Washington

Prototype Site Planners

Hellmuth, Obata & Kassabaum, Inc.
Architects, Landscape Architects,
Engineers
St. Louis, Missouri

Housing Systems Producers

Rouse-Wates, Inc.
Columbia, Maryland

Descon Concordia Systems, Ltd.
Montreal, Quebec

Material Systems Corporation
Valley Center, California

Home Building Corporation
Sedalia, Missouri

Real Estate Management

Laclede Town Company
St. Louis, Missouri

Background

The objectives of Operation Breakthrough, as set forth by HUD, are as follows:

establish self-sustained mechanisms for rapid volume production of marketable housing that progressively lowers cost for people of all income levels, with particular emphasis on those groups and individuals which had difficulty in obtaining satisfactory housing in the past;

stimulate the modernization and broadening of the housing industry through increased emphasis on better design and greater utilization of improved techniques which are within the current housing industry;

increase participation by other organizations that possess the necessary talents, interests and capacity for such a commitment.

The program establishes a comprehensive effort in many areas that presently constrain the development of an adequate housing supply, calling for innovative land use, modern management, adequate financing, market aggregation and good design. With even a modest achievement of overall Operation Breakthrough goals, this program could significantly encourage changes in the housing industry which may help implement the objective of doubling home production during the next ten years.

**DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT**

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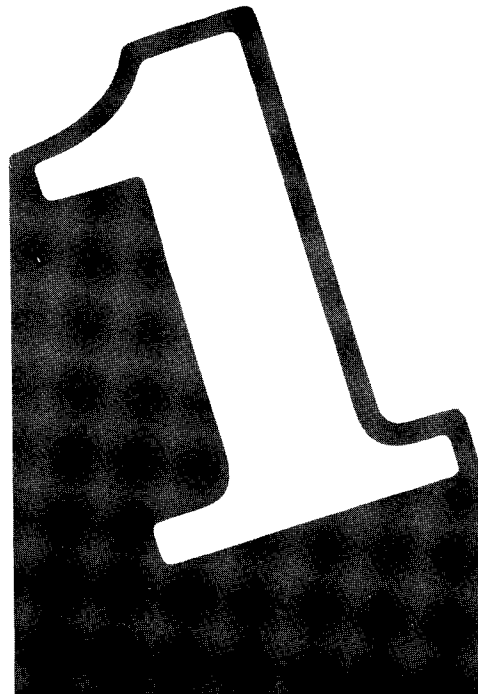
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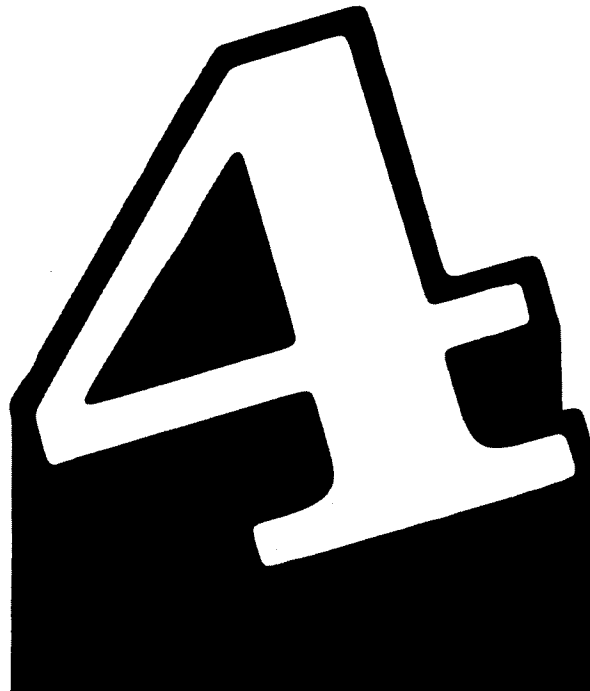
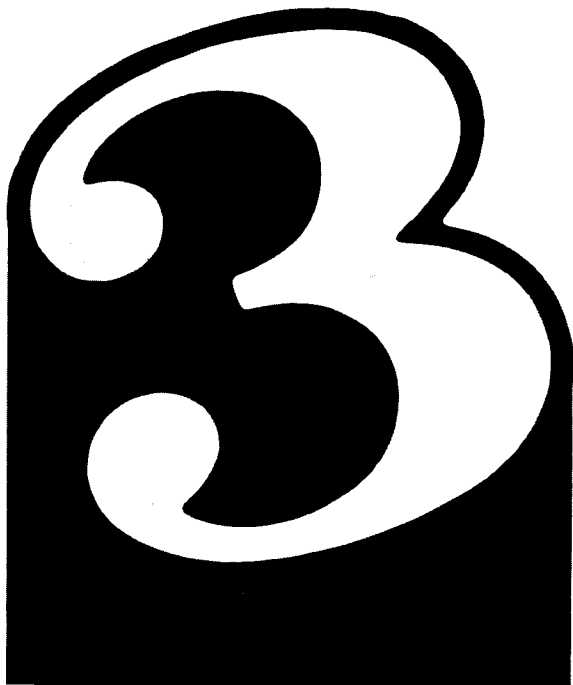


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Site Investigation & Conceptual Planning



Introduction

In January of 1970, the United States Department of Housing and Urban Development selected Hellmuth, Obata & Kassabaum, Inc., as Prototype Site Planner (hereinafter called Planner) of the Operation Breakthrough prototype site at St. Louis, Missouri.

The Planners' work under Task I included an analysis of the physical, cultural and social characteristics of the project site and neighboring areas. The Planner then developed a land use program and a conceptual site plan based on a series of alternative configurations. From this work, Preliminary Design Objectives were determined which became guidelines for coordinating and integrating the site requirements of each housing system. All of this was accomplished with continuous consultation with citizen groups, the St. Louis City Planning Staff and the Prototype Site Developer.

The results of Task I work was compiled in the Planners' Task I Report dated April 16, 1970. This report describes in detail the work performed in Task I. Monthly progress reports submitted during this period outline the planning process in terms of the numerous meetings which were conducted for the purpose and programming decisions. The Planner also compiled two volumes of newspaper articles which record public reactions to the program and the controversy regarding the local enabling legislation known as the "Instrument of Cooperation" or the "Operation Breakthrough Bill".



Community Participation

From the very beginning of the Planning process, citizen participation was an important and crucial ingredient. During the conceptual and preliminary planning period numerous discussion meetings were held with citizen groups, neighboring businessmen and institutions. A Council of Councils was formed to coordinate and plan citizen meetings. The Laclede Town Residents Council provided the main force in organizing and conducting meetings. The Council was very effective in soliciting ideas and site planning concepts from residents as well as mobilizing the much needed citizen support for the project. The Planner benefitted from several design critiques and brainstorming sessions with the citizen groups. (All citizens from the metropolitan area were invited to these meetings through the news media. However, most participants came from the immediate neighborhood.)

Enabling Legislation

Each city (or other governing body) which was chosen for the Breakthrough program was asked to waive existing zoning and building ordinances for the Breakthrough site so that innovative land use and design features could be implemented without the necessity of getting approvals for variances from the local governing and control agencies. This legislation was termed "Instrument of Cooperation" and was referred to locally as the "Breakthrough Bill."

The "Breakthrough Bill" was passed by the St. Louis Board of Aldermen on June 19, 1970, and was signed by Mayor A. J. Cervantes on July 6, 1970. However, this successful passage was preceded by considerable debate and controversy within the Board of Aldermen, several public hearings, and an unsuccessful attempt to pass the bill in March 1970 with a vote of 21 to 5.

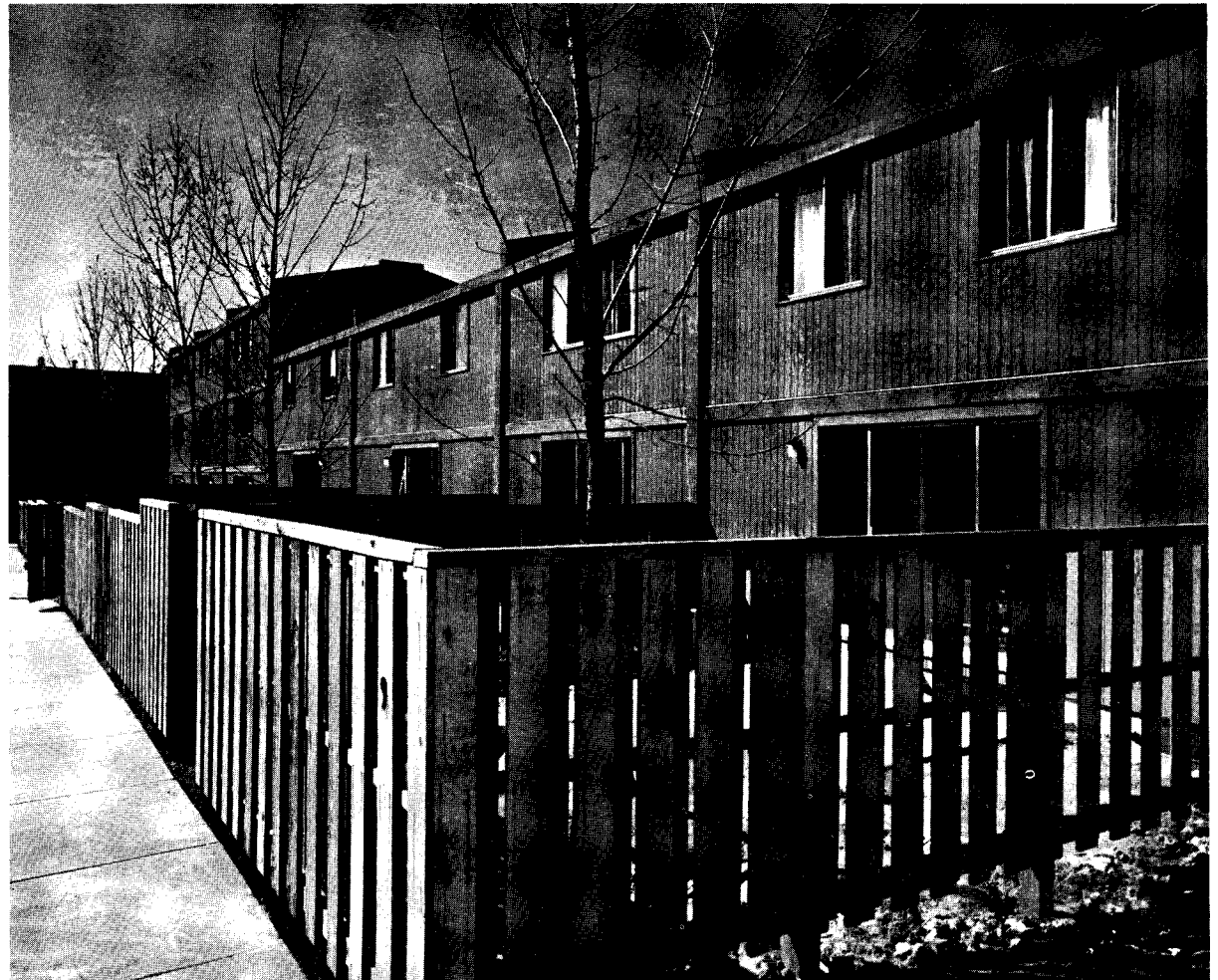
It appeared that those aldermen with strong ties with construction trade unions were opposed to the Project and were among those who voted against the bill or were absent during the successful passage of the bill on June 19, 1970.

The Planner observed that early and continued citizen participation resulted in having a group of well-informed citizens who actively supported the project. These citizens took their supportive arguments directly to several of the dissenting aldermen; they were effective spokesmen for the community and their efforts undoubtedly had a profound effect on final vote on the "Breakthrough Bill."

Many of the early and important planning decisions were made during Task I activities and most of the information regarding these decisions has been recorded in the above mentioned documents. This final report on Task I briefly summarizes this data and does not fully cover this very active and busy planning period.

Program Objectives

1. The creation of an optimum living environment with a variety of housing types and densities clustered within a unifying open space system.
2. The provision of a design and scale appropriate to the climate and physical characteristics of the site, preserving the natural assets of the landscape as well as being complementary to surrounding development.
3. Provide living densities which will minimize per unit land and site development cost.
4. The provision of a circulation system which minimized vehicular and pedestrian conflict while serving the ultimate needs of the residents with maximum efficiency and safety.
5. The establishment of a variety of housing types and densities to accommodate a broad spectrum of the population.
6. The provision of a unifying open space system which offers a variety of daily recreational activities appropriately related to housing clusters.
7. The provision of a community center facility to serve initially as a visitors' preview center and ultimately as the nucleus of social activity for the resident — the gathering place.
8. The provision of a site design responsive to the application of technological innovations in construction techniques.



The Sites

The St. Louis Operation Breakthrough site consists of two separated parcels located in the Central West section of the city. Between the two parcels is Laclede Town — a highly successful townhouse development of 625 units.

East Site



The site is convenient to the CBD, several educational institutions and is well served by arterial streets on the north and south and an east/west expressway. The west site is 7.9 acres and the east site contains 7.6 acres.

East of the Breakthrough site is a recently developed business district which contains a variety of low-rise office buildings. Beyond this district lies the St. Louis Gateway Mall which is a major open space leading to downtown St. Louis terminating at the Gateway Arch at the Riverfront.

Immediately south of the site are two well-maintained townhouse developments, a teachers college, an elementary school, and an area which will be developed as a community shopping center. Further south is a new, large, light-industrial office park.

On the west the site is bounded by a recently constructed portion of the St. Louis University campus. A large area remains as open space for University athletic events.

North of the site lies a large, mixed-use area with many vacated buildings in a state of disrepair.

The Laclede Town community has provided a strong anchor for residential development and the Breakthrough developments at each end have utilized the last two remaining residential parcels to finalize the redevelopment of this area.

Preliminary Design Objectives

After synthesis of program objectives, citizen input, and site and community factors, the following preliminary design objectives were established.

1. Develop intensive, pedestrian community space as the major organizational elements.
2. Retain maximum amount of open space for enjoyment of residents.
3. Minimize automobile intrusion without undue loss of convenience:
 - a. Maximum walking distance from car to front door - 200 feet,
 - b. Automobile to be kept out of pedestrian precincts.
4. Public neighborhood places to be easily acceptable and visible to residents.
5. Small children should have safe, secure, easily surveilled places to play.
6. Pedestrian circulation should be designed to allow for convenient pathways to off-site community facilities.
7. Maximum use of large, hardy trees as the main vegetation.
8. Minimize objectionable views and noise.
9. All age groups should have their own identifiable outdoor space.
10. Provide some unassigned outdoor places.
11. Make optimum use of existing land.

West Site





Program

The program for the number, sizes, and distribution of housing units on the two St. Louis parcels was developed through close consultation among the Planner, Site Developer, Housing System Producer and HUD. The program was influenced by several major factors:

- a. Ultimate population which could be assimilated within the site and community.
- b. Initial and ultimate child population and the effect on available schools and areas for recreation.
- c. Market demands as experienced within the Laclede Town development.
- d. Analysis of family types needing and desiring urban housing.
- e. Overall economic feasibility.
- f. Ability of selected housing system producers to provide most suitable units for the St. Louis market.

Preliminary Housing Unit Distribution Table

West Site

	Multi-Family Low-Rise	Multi-Family Medium-Rise	Multi-Family Low-Rise	Single-Family Attached	Single-Family Attached
Studio	—	16	24	—	—
1 br	6	32	4	—	4
2 br	32	32	24	—	4
3 br	6	—	28	—	—
4 br	—	—	—	44	—
Totals	44	80	80	44	12

West Site

The west site is very near to the existing elementary school and has five acres of adjoining city-owned land which will be developed for recreation. Therefore, the larger, family type units have been placed on this site.

East Site

The east site is adjacent to a high-rise apartment for retired persons; it is bordered by a busy arterial street, an office building and had no nearby access to recreational land. Therefore, this site was programmed for families having fewer children.

East Site

	Single-Family Low-Rise	Multi-Family Medium-Rise	Multi-Family Low-Rise	Single-Family Medium-Rise
Studio	5	12	—	—
1 br	—	40	10	—
2 br	9	34	54	—
3 br	19	—	20	—
4 br	30	—	—	4
Totals	64	86	84	4

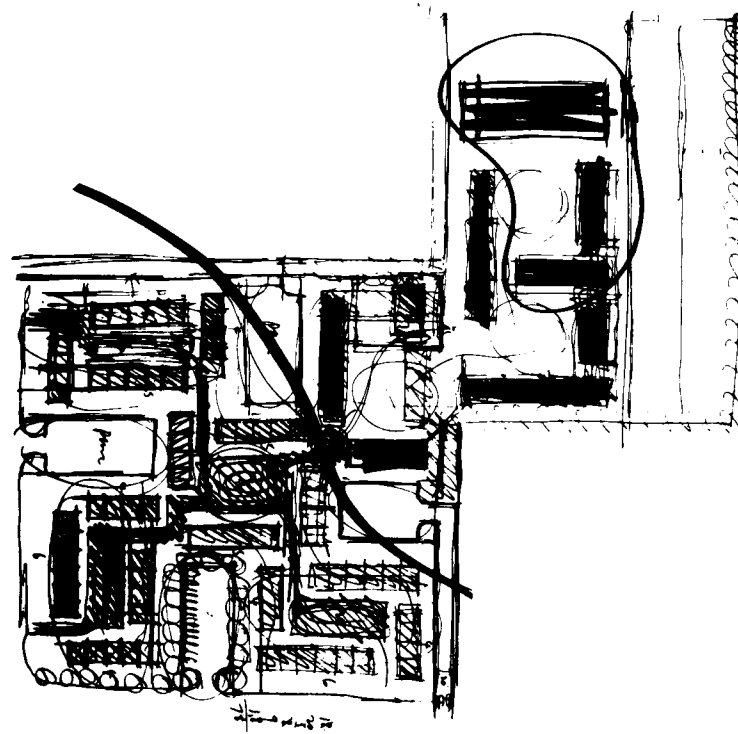
Total Housing Units on Both Sites

260

237

497

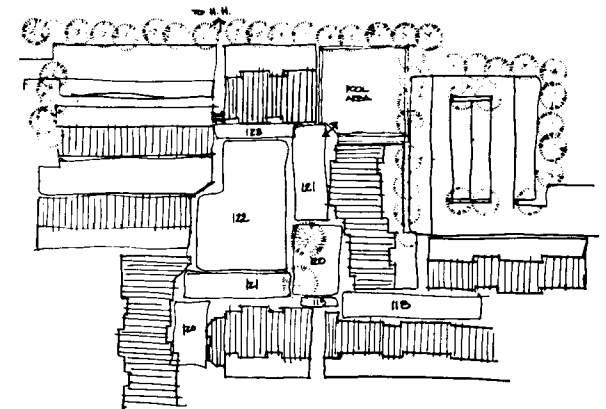
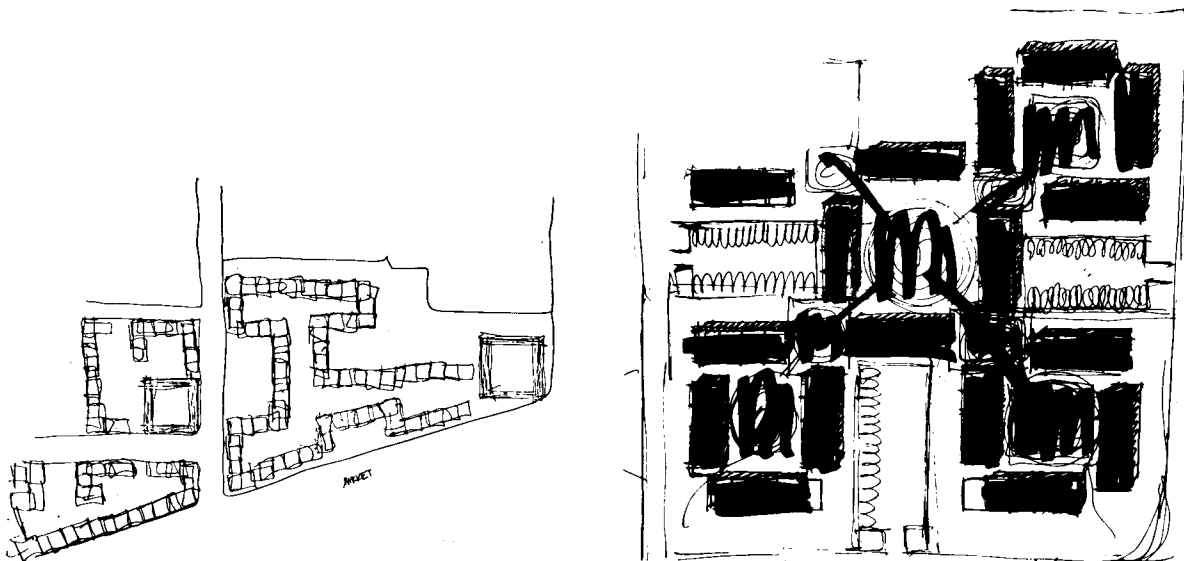
Preliminary Design



Introduction

The responsibility of the Planner under Task II was to develop preliminary site plans based on the objectives and conceptual site plans established in Task I.

The responsibility under Task II consisted of three categories: (1) Analysis of housing systems; (2) Preliminary coordination; and (3) Development of preliminary site design.



Program Requirements:

Analysis of Housing Systems:

The Planner reviewed the housing systems designated for the St. Louis site, together with their requirements, including:

- (1) **Architectural Characteristics:** Analysis of scale, color texture, facade treatment, materials, and forms of each building system to be used in the prototype site. Through coordinated analysis of architectural facades that occur on any one site, the Planner recommended which of the architectural variations of the prototype site design should be used.
- (2) **Construction Method and Sequence of Erection:** Analysis of requirements of each housing system including site storage of components, access for shipping, screening for use of heavy construction equipment, site fabrication area, and erection sequence.

- (3) **Testing Requirements:** HUD provided the Planner with testing requirements for each housing system. These requirements were analyzed to determine their site design implications.

After determining the portion of the site to be occupied by prototype housing, the Planner made a general review and investigation of sub-surface conditions to obtain the information necessary to properly design foundations for building systems and other site facilities. This data was made available to the Housing Systems Producers.



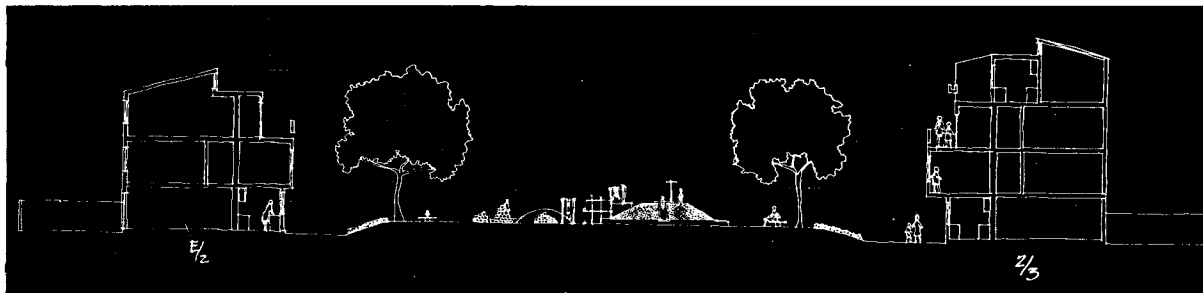


Preliminary Coordination

- (a) After analyzing the architectural, construction and testing requirements for each housing system, the Planner developed a site design to maximize the functional aspects of these three elements while creating a unified site and environmental design.
- (b) This task involved close coordination with Housing System Producers and their site planners, the Propotype Site Developer and the testing consultant. This coordination was important to insure that proper consideration be given to adequate site access for the housing system components, adequate perimeters for construction and erection equipment, component storage, and any required fabrication on site. The final site design accommodated the sequencing of the various housing systems' erection which extended over a period of several months.

Design Objectives

1. Provide a variety of housing types and densities, including garden apartment, townhouse, low-rise and elevator apartment, to accommodate families of varying size and income.
2. Develop an optimum living environment with maximum social, economic and aesthetic opportunities.
3. Clusters of housing groups integrated with a variety of courtyards and open space.
4. Vehicular traffic and parking limited to the periphery of each site to completely separate automobile traffic from interior pedestrian movements.
5. Conveniently located community facilities to serve social and recreation activities for the residents of all ages.
6. A system of walkways to provide safe, attractive and convenient routes for pedestrian circulation within the site.
7. Make optimum use of land by efficient layout.
8. Provide retail services and conveniences within the high-rise structures.
9. Maximize use of large, hardy trees and groundcovers to minimize maintenance cost use. Dense vegetation to visually minimize paved parking areas.



Preliminary Site Design

The Planner prepared preliminary site plans indicating types of structures and their placement, circulation for pedestrians and autos, all utility lines, and proposed landscaping. The Planner determined site engineering requirements and developed drawings and specifications for drainage and run-off, storm and sanitary sewers, fire and domestic water service supply, electrical services, gas supply lines, grading and fill requirements, retaining walls, roadways, walks, street furniture, lighting, play areas, and landscape planting.

The Planners were asked to recommend specific zoning changes which were needed, and specific provisions of local codes, regulations and ordinances which should be waived, changed or amended in accordance with the commitment by the City of St. Louis in the "Instrument of Cooperation." However, the site plan and design were done in accordance with provisions in local codes, regulations and ordinances.

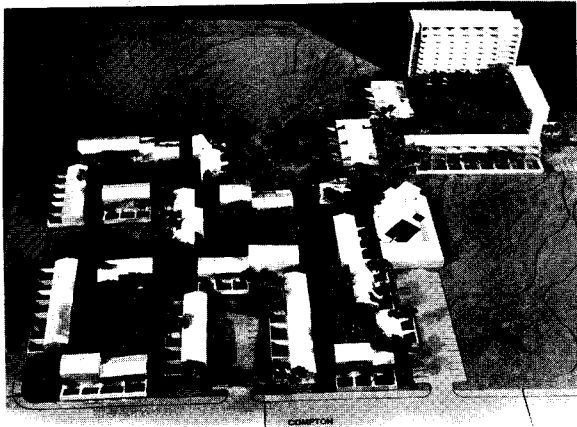
The site design for both parcels embraced the same basic concepts. However, the west parcel was planned for the larger, family-type dwelling units, since there was more adjacent recreational park land and it was nearer to the existing elementary school.

The basic concept was to use the buildings to provide a series of connected courtyards with the result being a series of pedestrian spaces of varying sizes and shapes which in total become a pedestrian street. This accomplished a real and psychological sense of security for residents by being inwardly oriented. At the same time these spaces become the neighborhood spaces; each being uniquely different from the other as determined by its configuration, the design of the space itself, the types of housing units on the edge, and the way in which it is used by its residents.

All vehicles are on the street side and are housed in lots along the patio side (private side) of the units. The fenced patios allow for private entry from the street and parking lot. However, visitors must enter through the "community" or "neighborhood" side.

Community facilities are strategically placed along pedestrian walkways: play areas for children and all ages, sitting areas, cycling areas, wisteria covered arbors and masses of deciduous trees which will provide a canopy effect and park-like setting.

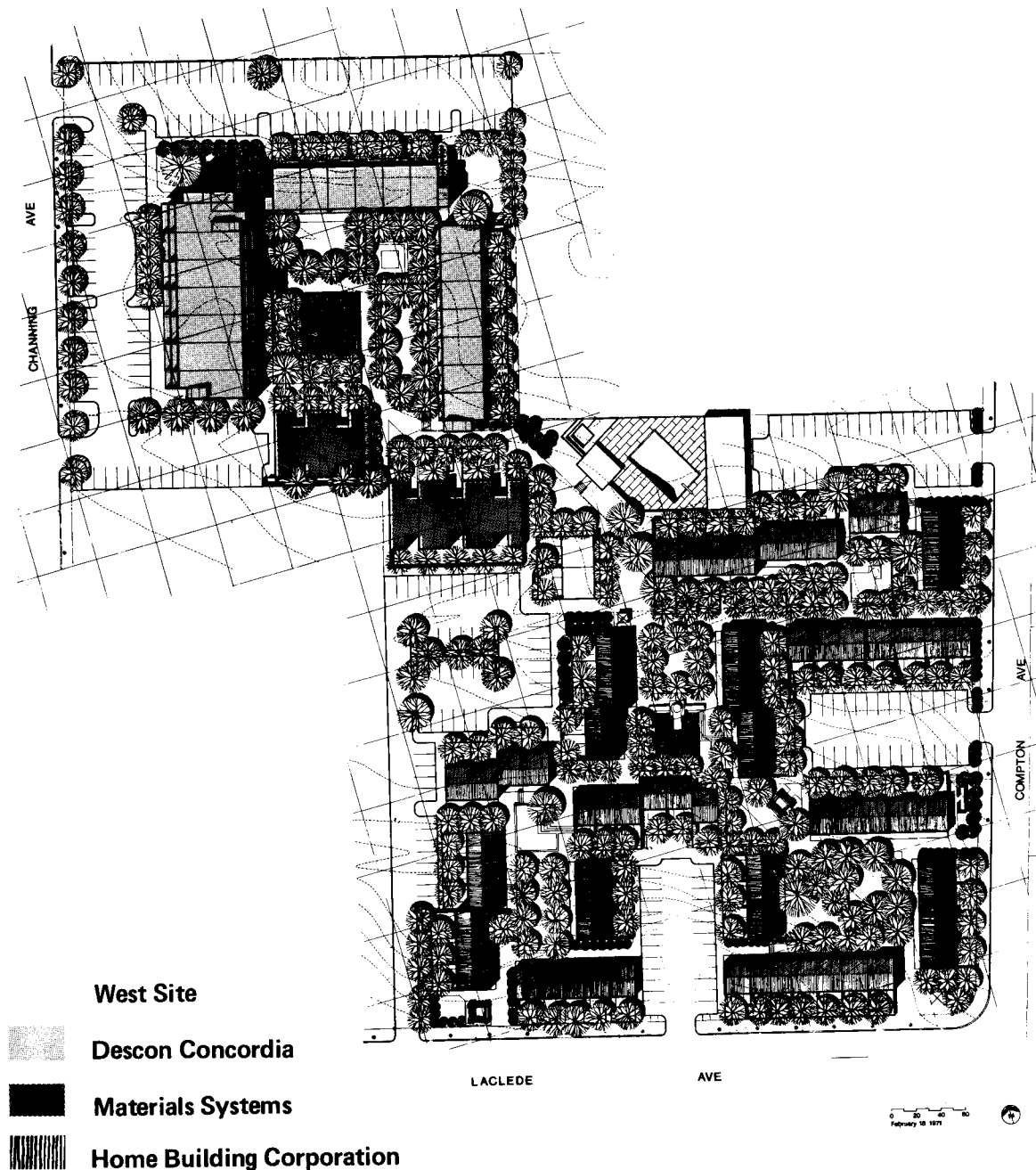




Recommended Land Uses	East Site	West Site	Total
(1) Housing: Units	1.66	1.79	3.45 Ac
Gardens:	0.83	0.78	1.61 Ac
		Total	5.06 Ac
(2) Open Space:			
A. Interior pedestrian street*	1.67	1.52	3.00 Ac
B. Paving areas	2.32	3.20	5.52 Ac
C. Miscellaneous access walks buffer areas	0.90	0.46	1.36 Ac
(3) Commercial	0.25	0.20	0.45 Ac
(4) City recreation space (not part of Breakthrough property)	0.00	5.00	5.00 Ac
Totals	7.64 Ac	12.95 5.00	
* 60% of this area to be used exclusively for Breakthrough Recreation		7.95 Ac = 15.58	

Final HSP Housing Unit Breakdown

Housing System Producer	Site Location	No. of Stories	Efficiency Units	1 Bedroom Units	2 Bedroom Units	3 Bedroom Units	4 Bedroom Units	Total Units
Descon/Concordia	West							
1-Elevator Apt.		10	5	45	40			
1-Low-Rise		5	12	0	12			
1-Low-Rise		3	0	0	14			
			17	45	66			128
Material Systems	West							
1-Garden Apt.		2		6	6			
1-Garden Apt.		2		4	4			
				10	10			20
Home Building	West							
75-Townhouses		2 & 3			10	21	44	
					10	21	44	75
Rouse-Wates	East							
1-Elevator Apt.		12	20	20	40	4		
11-Low-Rise		3 & 4	17	7	65			
1-Elevator Apt.		6	9	0	18	0		
			46	27	123	4		241
Summary of All Units								
Number of Units			63	82	209	66	44	464
Percent Distribution			13%	18%	45%	14%	10%	100%
West Site Total Units								223
East Site Total Units								241
Total Units								464



Market Analysis:

* The marketing procedures established for Breakthrough are set forth in the "Management Manual for St. Louis Operation Breakthrough Prototype Site", prepared by the Laclede Town Company. This manual was originally produced in May 1971, and approved by the Department of Housing and Urban Development August 12, 1971. Slight modifications were made February 15, 1972, at HUD's request. Initially, Operation Breakthrough marketing had as its goal the careful integration of Breakthrough homes into the total Mill Creek Valley Community, a community already known for its social and economic diversity.

The market analysis includes the following breakdown for four rental categories:

- | | | |
|----|--|-----------------|
| 1. | Low Rent Units
(Rent Supplement Program) | 10%
of Units |
| 2. | Moderate Rent Units
(Section 236 Regular Program) | 30% |
| 3. | Middle Rent Units
(Section 236 Exception Program) | 50% |
| 4. | Upper Rent Units
(Market Rate) | 10% |

Housing Systems Producers

Materials Systems Corporation Escondito, California

The materials Systems units were terminated on the St. Louis site and a conventionally built system was constructed in accordance with Material Systems unit plans.

Home Building Corporation, Sedalia, Missouri

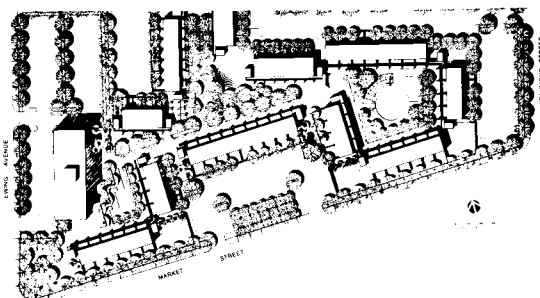
Home Building Corporation has constructed 75 two-and three-story townhouses of wood frame factory built modules. The modular units were completely fabricated at the factory near Sedalia, Missouri, and transported to the building site by truck. At the site the modules were placed on the foundations by cranes. A four-foot in-fill section was added on site to join two modules which added extra depth to each townhouse unit. Each unit has a full basement and a private fenced patio area off the living room. The exterior finish is scored plywood.

Descon/Concordia Systems Limited, Montreal, Quebec

Descon/Concordia Systems has built one 10-story, 90 unit apartment building; one 5-story, 24 unit apartment building; and, one 3-story containing 14 garden apartments. These three buildings are interconnected by pedestrian galleries. The structural components are precast concrete floors, walls and beams which were produced at local precast facilities.

Dry mechanical joints were used to facilitate all weather assembly of the panels at the site. Utilities were distributed within the structural units utilizing prefabricated mechanical packages. The ground floor of the 10-story build has spaces for neighborhood shops and management offices.

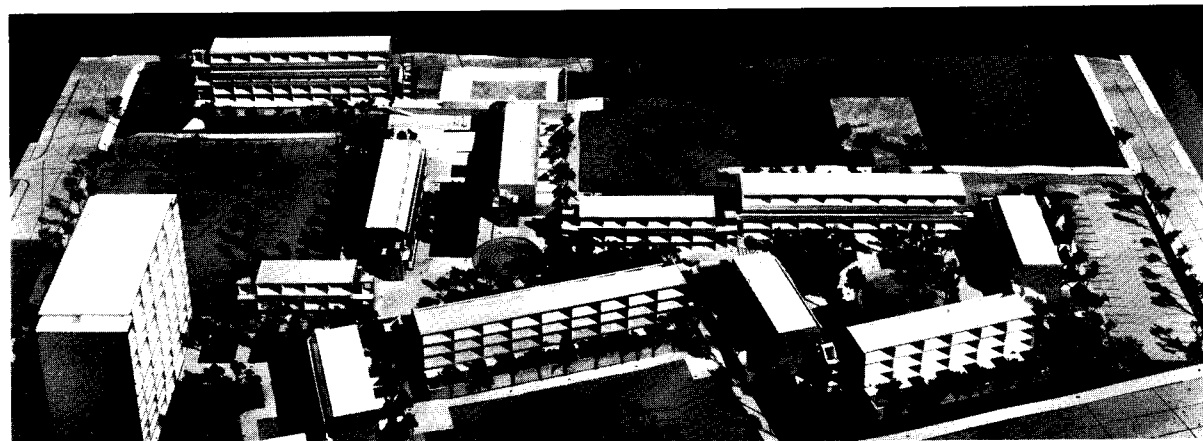
The concrete wall panels have been painted dark brown in the exterior and the concrete balcony railings have been left in natural concrete color.



Rouse-Wates, Inc., Columbia, Maryland

Rouse-Wates has used a precast concrete wall and slab construction to build one 12-story building containing 84 apartment units; one 6-story building containing 84 apartment units; one 6-story buildings with 27 units and 11 3- and 4-story buildings with 130 units. The ground floor of the 6-story building is depressed approximately eight feet and opens out onto a public terrace. The units within the space are being utilized for neighborhood shops and services such as soda fountains, drug stores, bar, etc. The ground floor of the 12-story building is being used for management offices and a community activity room.

The 3- and 4-story buildings are interconnected with pedestrian galleries. Garbage collection units have been built into the base of each stair tower. The exterior surface of the concrete is an exposed brown aggregate and cedar wood has been used for balcony railings.



Working Drawing Development

Introduction

In Task III, the Planners developed complete contract documents for the site's development. The products of this included plans and specifications for site design and ancillary structures. All work under this task was coordinated with the Housing Systems Producers, and refinements to the contract documents were made in response to required changes caused by their continued research.

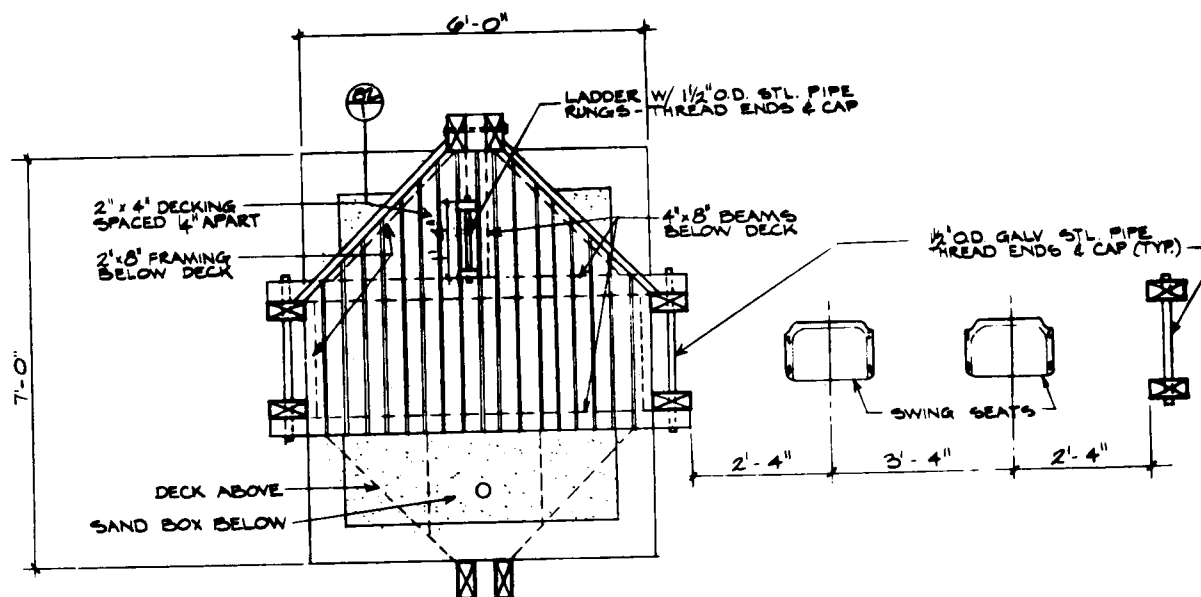
Program Requirements

In Task III the Planner inspected the preliminary and working drawings of each Housing System Producer to insure their consistency with the overall site design and made refinements in design based on continued research and detailed information on the architectural characteristics of the buildings.

Based on this information, the Planner prepared plans demonstrating aesthetic coordination of the housing systems. The plans also demonstrated construction coordination, showed access and delivery routes for each housing system, indicated areas for storage and protection and coordinated use of such equipment, site fabrication areas, and schedules for component delivery and erection.

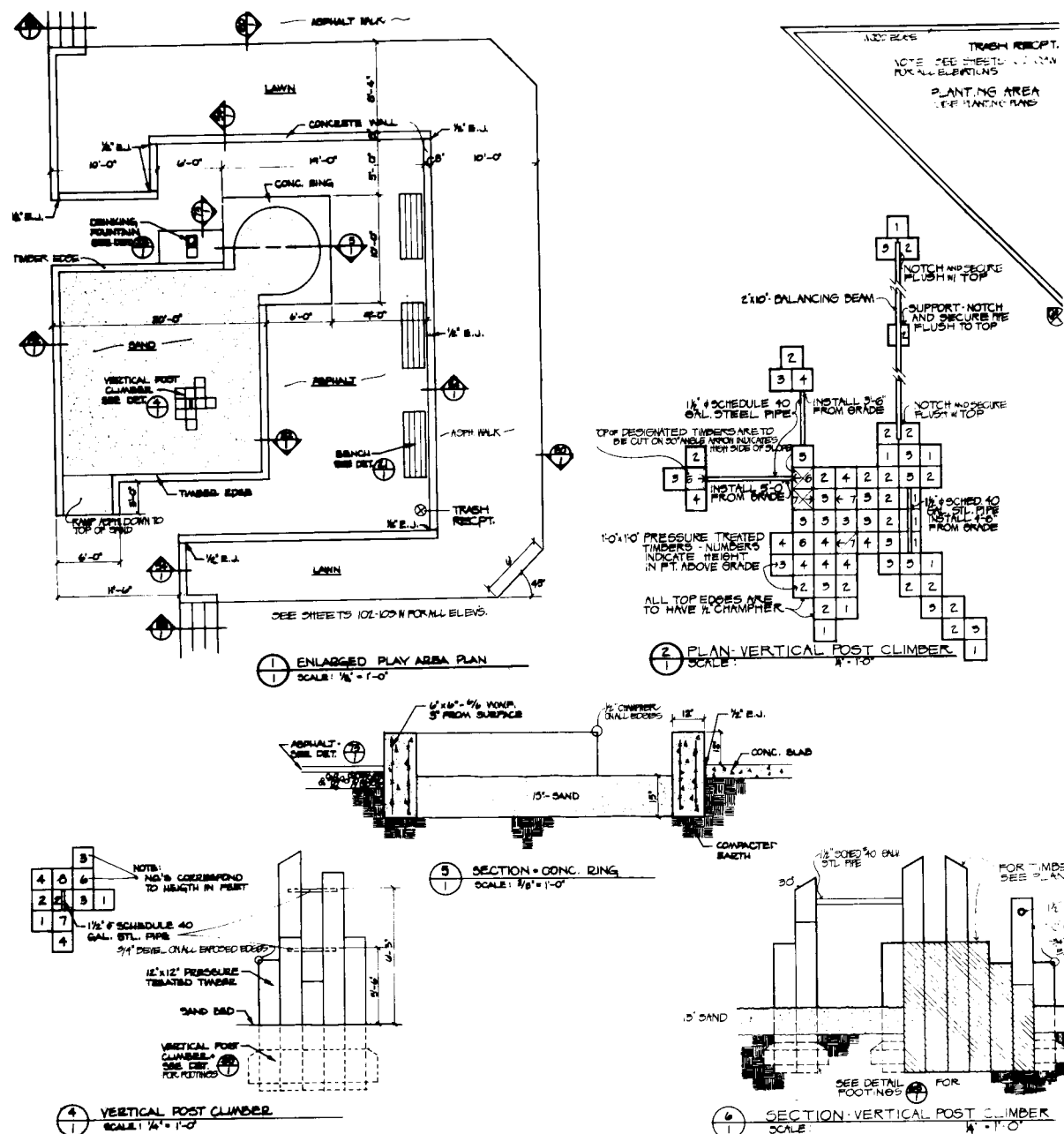
Early completion of certain drawings was required in order to obtain bids and cost estimates for site work and erection. These drawings were to include the grading plan, road network, and phased construction drawings for utilities, landscaping, and other work needed for the earliest housing systems.

Care was exercised in coordination of grading, dimensions, utility interfaces and all engineering aspects to assure proper matches and connections between housing system parcels and surrounding areas.



The Planner prepared specifications for each bid package, and the Prototype Site Developer then added front-end material, bidding forms, etc. The bidding packages listed below were submitted to HUD for review.

- Storm sewer system
- Sanitary sewer system
- Water, gas, electricity, telephone & lighting
- Rough grading, clearing & grubbing
- Site improvements
- Site concrete work
- Asphalt work
- Maintenance garage & pool
- Landscaping



Inspection of Site Construction

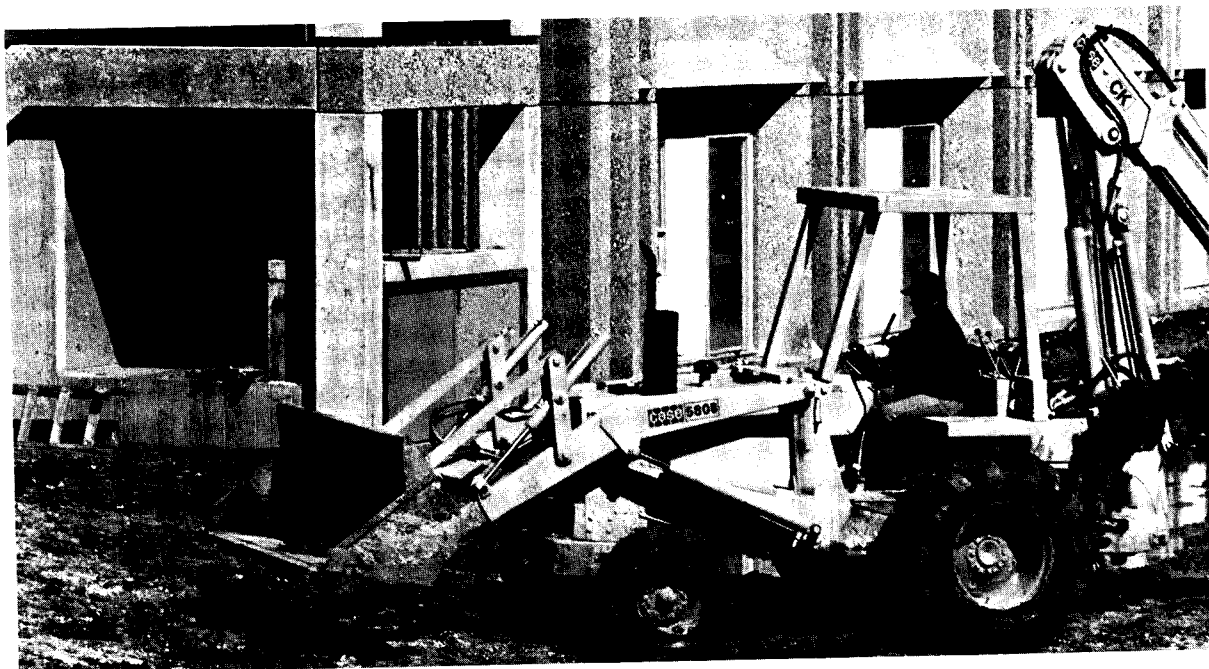
Introduction

In Task IV, the Prototype Site Developer was responsible for the management control and coordination of all construction on the St. Louis sites. The Planner's responsibility was to inspect the overall site construction to determine that all work was being carried out in accordance with the contract documents. The Planner was also to determine that the location and external treatment aspects of the housing systems construction which affect the overall site design were being erected in accordance with the contract documents. The Planner was also responsible for the review and approval of all shop drawings required by the site plan contract documents and to provide the final as-built drawings.

Site Development Construction

Groundbreaking ceremonies took place on November 12, 1970. Rough grading work started on November 16, 1970.

The entire St. Louis area was subject to an ironworkers strike which started August 9, 1972, and ended October 9, 1972. The Breakthrough Project was picketed for most of the strike which prevented any work of any type.



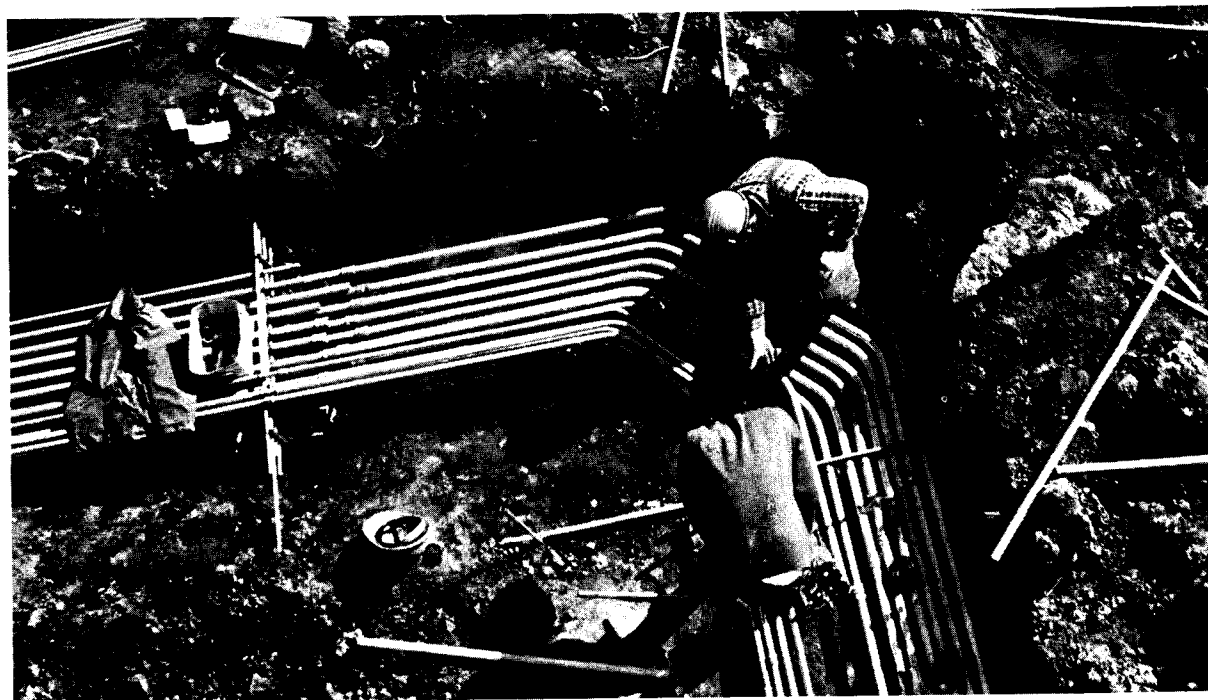
East Site:

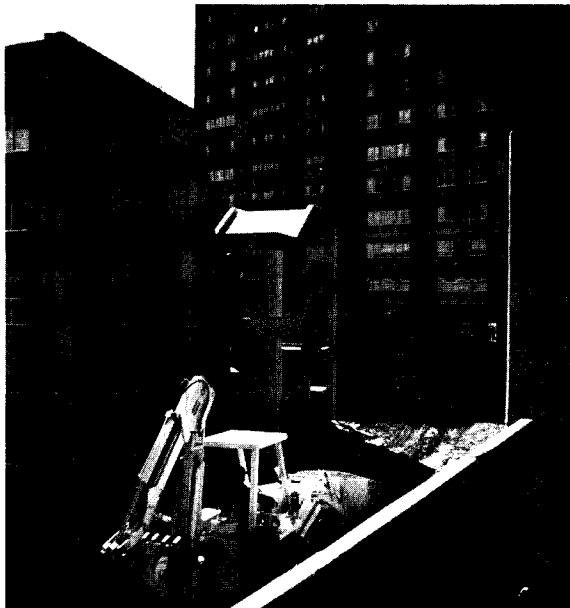
The sewer work and heavy water main work were all completed early in the project on the East Site. The water distribution work commenced November 29, 1971. The underground electric, telephone and site lighting work commenced on September 20, 1971. The Western Union conduits, Union Electric tunnel and the new Western Union cable were completed in August, 1971. Construction of the pool, bathhouse and maintenance building commenced on January 18, 1972.

West Site:

The sewer work and heavy water main work were all completed early in the project on the West Site. The underground electric, telephone and site lighting work commenced on August 11, 1971. Gas distribution work commenced on October 11, 1971, and water distribution work commenced November 4, 1971.

Fence work commenced at Home Building area on January 26, 1972. Construction of the pool, bathhouse and maintenance building commenced on November 18, 1971, and the swimming pool was placed in operation the weekend of July 4, 1972.





Construction of Housing Systems

East Site:

Rouse-Wates began excavation for foundations on April 28, 1971. Pre-cast erection started November 16, 1971. High-rise occupancy began in March 1973. The expected date of completion of the three to four story and six story units is June 1973, with occupancy to begin at about the same time.

West Site:

Home Building Corporation commenced excavation for foundations on June 7, 1971. Erection of modules started September 9, 1971. All units were completed on July 1972, and units were occupied by tenants commencing March 1, 1972.

Material Systems Corporation commenced excavation for foundations on September 22, 1971. Foundations were completed November 8, 1971. The expected completion date is September 1973, with occupancy expected to commence at the same time.

Descon/Concordia Systems, Ltd., commenced excavation for foundations on September 27, 1971, and commenced erection of pre-cast on May 9, 1972. Expected completion date is June 1973, with occupancy expected to commence at about the same time.

Site Inspections:

Weekly construction inspections were carried out with representatives of the Prototype Site Developer, HUD, the Planner, and on-site inspectors. Monthly written reports on construction progress and quality of construction were prepared by the Planner for distribution to all participants.

The St. Louis Project, after delays in obtaining Housing System Producer contracts and 100% drawings, together with the ironworkers strike, delayed not only the Housing System Producer work but also delayed the site development work. These delays caused a major part of the site development work to fall in the winter season. The winter weather caused additional delays in the completion of the total project.

The following is the revised construction completion schedule showing only items not yet completed due to delays mentioned above. The schedule indicates date when construction is expected to be completed.

Construction Completion Schedule

Description	Laclede East Site	Laclede West Site
	Completion	Completion
Asphalt Paving - Park	5-15-73	5-15-73
Asphalt Walkways	6-30-73	5-31-73
Concrete Curbs, Walks & Patios	5-31-73	5-15-73
Brick Paving	6-15-73	5-31-73
Patio Fences	6-15-73	6-15-73
Final Grading	6-15-73	5-31-73
Landscaping	5-31-73	5-15-73
Sodding	7-15-73	6-30-73
Timber Seating	7-15-73	—
Play Area	—	6-15-73
Structures		
Rouse-Wates	6-30-73	—
Descon/Concordia	—	5-30-73
Materials Systems	—	9-15-73





Conclusion

Some observations of the site planner regarding site design and site construction are:

Design Control during construction was ineffectively carried out. Many changes in details of construction and design were made without the advice or consent of the planner. Some of the design changes were the results of misinterpretation of plans; some were specific changes to economize and some were due to lack of skill on the part of the contractor or poor enforcement of the requirements of the plans and specifications.

Contractors: Many of the small subcontractors were inexperienced in reading and understanding plans and specifications as well as lacking the technical skills necessary to perform the work. Often subcontractor crews worked without a foreman or supervisor and without the benefit of a set of plans in the field. As a result schedules were not met and workmanship is generally poor.

Materials and Workmanship: In many instances materials do not meet requirements of the specifications. Example: lumber used to construct site structures does not meet the standards required, and aluminum nails were not used in fence construction as specified. Masonry and carpentry workmanship is poor throughout the project. Plant material has been installed out-of-season and maintenance appears to be minimal.

The Planner has had the opportunity to be engaged in almost every phase of the Operation Breakthrough program in St. Louis. The degree of involvement has varied from very active and intensive to something on the order of spectator and informal advisor.

The emerging product of the Breakthrough program in St. Louis is an urban residential environment that is superior to other urban residential areas that are within the same marketing categories. Acceptance by residents has been very favorable and in general the site is being used as intended. Children are using the facilities and areas designed for them. The fenced patio gardens are being used for planting gardens and serving the many functions of a private outdoor space. The interconnected pedestrian courtyards provide space for many community activities and serve effectively in establishing a neighborhood scale as well as a sense of security.

