The Affordable Housing Demonstration
Case Study 1

Birmingham, Alabama

The Joint Venture for Affordable Housing

Housing costs have risen dramatically in recent years, so that many people have been unable to buy a home. Part of this cost increase was due to the high rate of interest on home mortgages, which reached almost 20 percent in some areas of the country before dropping under 14 percent in 1983.

A large part of the increase, however, was due to other factors -- rising costs of materials and labor, a reduction in the amount of land available for housing which has drastically increased lot prices, and changes in market patterns leading to larger homes on larger lots. Studies by the President's Commission on Housing and by a special U.S. Department of Housing and Urban Development (HUD) Task Force on Housing Costs confirmed the findings of earlier studies showing that ways exist to cut the cost of housing. These studies also show, however, that out-of-date regulations and building practices frequently prevent these ideas from being applied. In fact, the studies pointed out that many builders and local officials do not even know about many of the ways that exist to reduce housing costs.

The Joint Venture for Affordable Housing was initiated by HUD Secretary Samuel R. Pierce, Jr., to correct this situation. Since affordable housing is a problem which involves all levels of government as well as the rest of the housing industry, finding an answer requires the participation of all of these elements.

Through conferences, workshops, demonstrations, publications, and similar activities, ways to cut construction costs through more effective and efficient planning, site development, and building procedures are being brought to the attention of builders and local government officials all over the country.

The Affordable Housing Demonstrations

Home builders learn from other builders; successful ideas are copied and used in new ways by other builders in many different areas of the country. The affordable housing demonstrations have been developed to illustrate ideas for reducing housing costs in real projects and to provide information on the cost savings that resulted.

The central theme of the demonstration program is that a builder and those local officials responsible for regulatory approval can, together, identify ways to reduce the cost of housing and to modify or interpret local building codes and site development regulations so that these methods can be used. In the demonstration program, no Federal funds are provided either to the builder or to the community to support the demonstration projects. HUD and the National Association of Home Builders Research Foundation do provide technical assistance through various publications documenting previous research studies and through suggestions to the project designers, but it is the builder's responsibility to develop a list of possible cost-cutting ideas and it is the responsibility of local officials to accept those which are reasonable for that community.

Participating builders and communities have been selected for the demonstration program in several ways. Before the Joint Venture was announced in January 1982, HUD

approached a number of communities which had already demonstrated, in other activities, a willingness to modify regulations and to take other steps to encourage local development. As these communities agreed to participate in the program, NAHB worked through its local associations to identify builders in the communities with reputations for quality and records of innovation. Following announcement of the first twelve communities and builders selected to participate in the demonstration program, many other communities and other builders expressed interest in joining the program. In each case, HUD required a formal commitment by the highest elected official that the local government would support the program.

Once a project was accepted, HUD and the NAHB Research Foundation assisted the builder to identify cost-cutting ideas and to develop a workable, attractive site plan. The cost-cutting measures used in the various demonstrations vary widely. In some projects, street widths, street design standards, and utility system requirements were changed to reduce costs. In other projects, unit densities have been increased to reduce the impact of land cost on the final price, while good site planning and design have made this increased density acceptable to the communities. New housing materials and construction methods were used in many projects. In addition to these changes in materials and methods, many projects benefited from improvements in local administrative procedures which reduced the time and effort needed to obtain building and land use approvals.

The Case Study Approach

Each project undertaken as an Affordable Housing Demonstration as part of the Joint Venture for Affordable Housing is being described in a case study report. The case studies are intended to be learning tools to help home builders, local officials, and others concerned about affordable housing to recognize and seize opportunities to reduce housing costs through regulatory reform and the use of innovative planning and construction techniques.

Information on the changes and their impact on costs is collected by the NAHB Research Foundation. Each case study describes the community, outlines the builder's experience, and discusses the specific project characteristics and history. Where possible, the cost savings resulting from the use of the various procedural, planning, development, and construction changes are calculated and reported in detail.

This volume provides information on the Affordable Housing Demonstration projects in Birmingham, Alabama; Knox County, Tennessee; Lincoln, Nebraska; and Sioux Falls, South Dakota.

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Summary

"Williamsburg Square" is the second afforable housing demonstration project in Birmingham, Alabama, the only city with two demonstrations.

Birmingham was one of the first cities selected for the demonstration program early in 1982 due to the active interest of Mayor Richard Arrington in finding ways to reverse the downward trend of housing starts in the city. The first Birmingham project, delayed somewhat by site acquisition problems, is now in design; it will be discussed in a future case study.

Williamsburg Square is being developed by Malchus Construction Company on a 20 acre site in the eastern section of the city, just a few minutes from downtown.

Designed with an 18th century architectural theme, the project consists of 111 single-family attached units ranging from duplexes to six-plexes. Floor areas range from 800 square feet in 1-bedroom units to 1,600 square feet in 3-bedroom units; prices vary from $51,900 to $58,900.

Cost savings achieved by Malchus averaged $4,278 per unit, with the biggest increment ($3,198 per unit) coming from a three-fold increase in site density permitted by the city. The density increase also permitted site development savings of $993.50 per unit. Additional savings were achieved in some administrative areas.

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Chapter 1

Project Description

The Community - Birmingham, Alabama

The city of Birmingham is located in Jefferson County, Alabama, in the north-central part of the state. Within Jefferson County there are 34 incorporated municipalities with a total 1983 population of 689,100 according to the U.S. Census. The city of Birmingham's 1982 population was 281,300, a 6.9 percent decrease from the 1970 population of 300,910. The city covers 89.76 square miles. Average temperature is 63.2°F with a record high of 107°F and a low of -10°F. Average rainfall is 53.4 inches.

Birmingham had its origin as a mid-south base for heavy industry, primarily steel and other metals, but during recent years the industrial base has broadened to include many light industrial operations such as metal fabrication. Other major economic activities in the area include food and animal feed processing, and the manufacture of furniture and railroad equipment. More than 40 percent of the Fortune 500 industrial companies are represented in Birmingham. The University of Alabama in Birmingham with over 9,500 employees is the major employer in the city. Other major employers include the telephone company, the power company, and the city and county boards of education.

Mayor Richard Arrington, Jr., is the administrative head and chief executive of the city of Birmingham. A nine-member council is the governing body of the city and has all legislative and policy-making powers. The city government is organized into ten major departments: Aviation, Building, Community Development, Engineering and Construction, Finance, Fire and Rescue, Legal, Police, Streets and Sanitation, and Traffic Engineering.

Support came from: City Commissioners Harold Wingler and Dick Peterson; Larry Watts, Head of Community Development; Dr. Edward Lamonte, Executive Secretary to the Mayor; James R. Land, Director of Community Development; Sunset Carson of Land Use Planning and Controls; and Dick Lindsey of the Housing Division.

The Mayor commissioned the preparation of a report to describe the permit and approval process for builder/developers. The document will include the processes for routine applications for residential building permits where all zoning and subdivision regulations are met, and for nonroutine applications requiring approval through one to three city departments. These processes are more completely described in Appendix I.

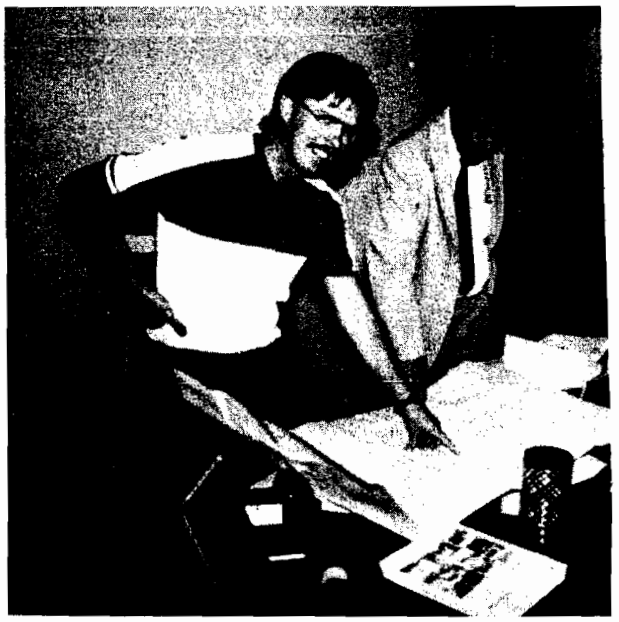
Household income in 1983 was about $21,000. The average home price was $55,400. The city issued 1,565 single family building permits in 1983, representing a total value of $73.5 million.

Housing starts in Jefferson County peaked in 1972 with 10,406 single-family and multifamily units and again in 1977 with 7,089 units. However, housing starts have declined every year since to a low of 1,133 units in 1982. Birmingham's Mayor Arrington responded to this situation in the spring of 1982 by establishing a Housing Task Force to explore new approaches to home construction and housing rehabilitation. This Task Force and other expressions of the city's interest in housing were factors in the designation of Birmingham as an Affordable Housing Demonstration site in the spring of 1982.

The original Birmingham project was first planned as an "infill" project, so when the city supported the request from Malchus Construction for a subdivision affordable housing demonstration project, HUD designated a second Birmingham demonstration. The first demonstration project was delayed due to site acquisition problems, but is now underway. It will be the subjct of a later case study.

The Builder - Malchus Construction Company, Inc.

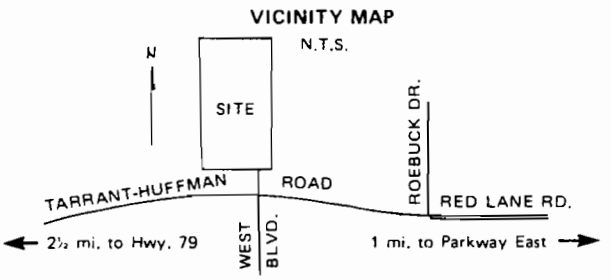
Malchus Construction Company, Inc., has been a single family home builder since 1971. Randy Malchus is president of the company. In 1983, the company built 39 single-family attached homes averaging 1,200 square feet of living space with an average sales price of $55,400, and three single-family detached units, averaging 1,600 square feet and selling for $78,000.



Randy Malchus, President, Malchus Construction Company, Inc.

The third largest builder in Birmingham, Malchus won "Best in the Village" in Birmingham's Parade of Homes four of the last five years based on consumer votes. In the past, Malchus has built on land developed by others. The demonstration project represents their first venture in site development. In addition to the demonstration, Malchus built 15 speculative houses in the third quarter of 1984. Malchus Construction uses innovative design techniques and constantly searches for new ideas.

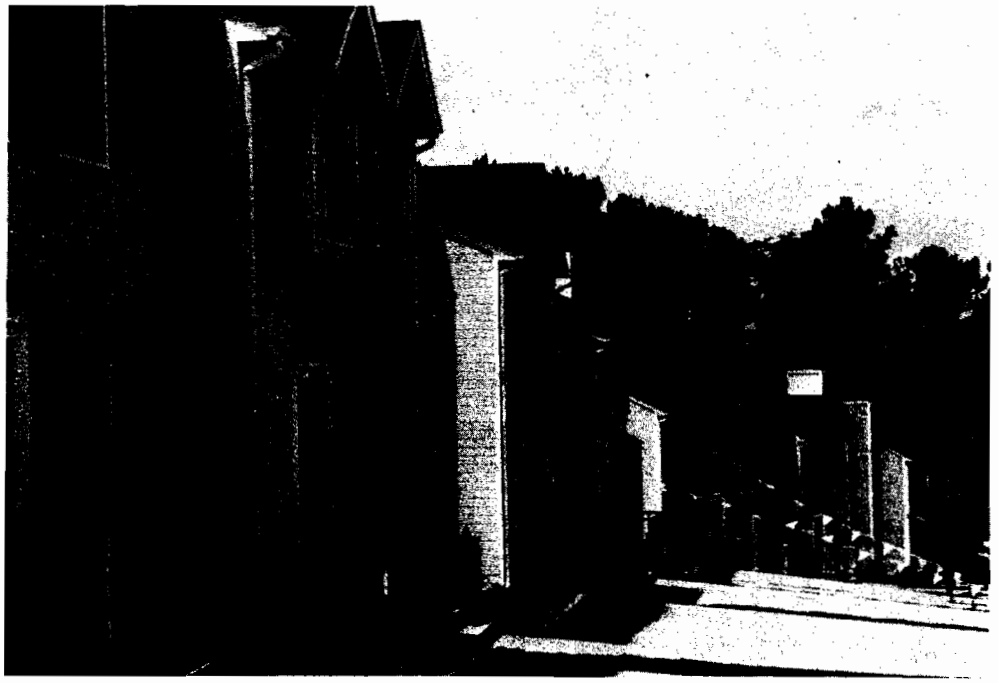
The Project - Williamsburg Square



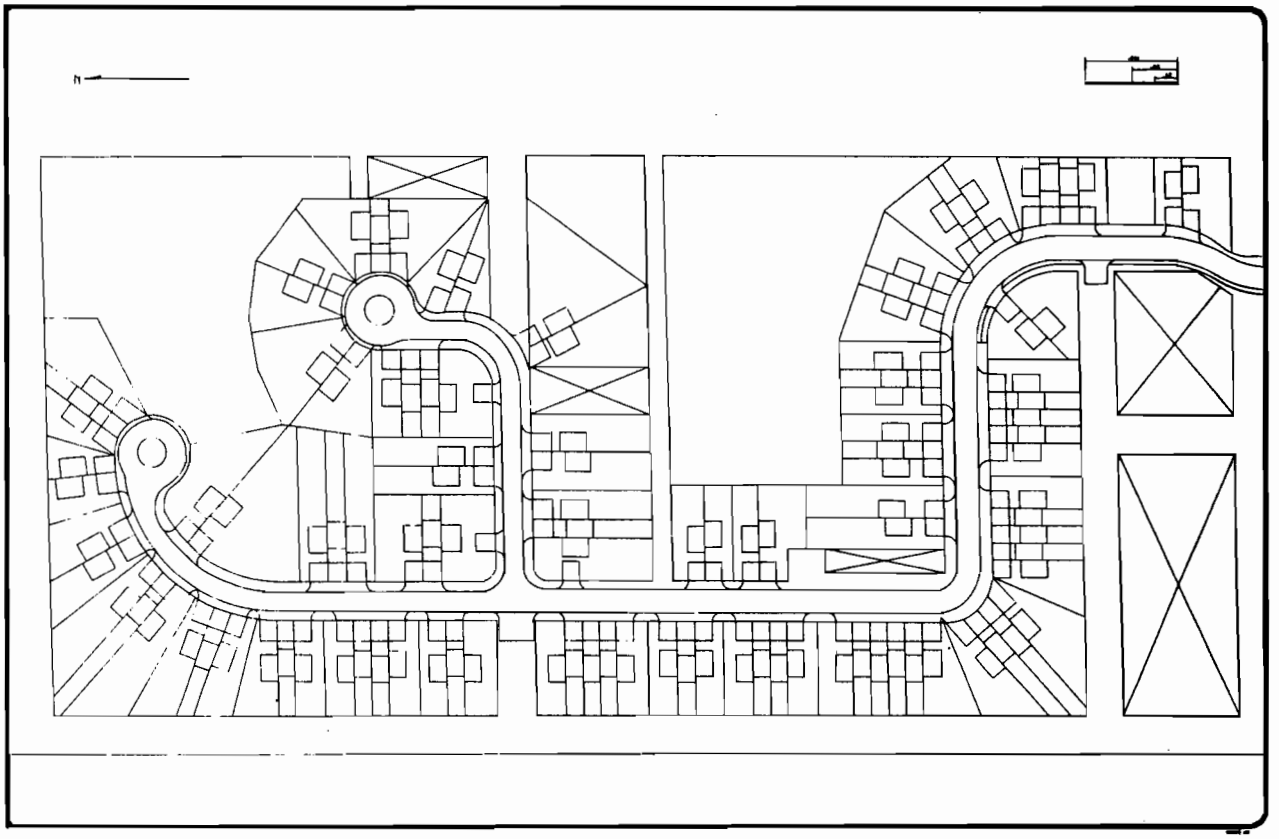
Williamsburg Square site location

Williamsburg Square, the Affordable Housing Demonstration project, is on a 20 acre hilly site in the eastern section of Birmingham, a few minutes from the center of the city. The 111 unit development consists of single-family attached units ranging from duplexes to six-unit townhouses. Floor areas range from 800 square feet for 1-bedroom to 1,600 square feet for 3-bedrooms; the homes were priced from $51,900 to $58,900. The homes have double off-street parking spaces with landscaped lawn area around the private driveways. Five acres (25 percent of the site) is open wooded area.

The typical buyer of a Williamsburg Square home had a family income of $18,000 to $25,000. Approximately two-thirds were first-time home buyers.



Williamsburg Square homes



Williamsburg Square site plan

Chapter 2

Project History

Birmingham was already a "demonstration city" when Randy Malchus, president of Malchus Construction Company, approached HUD to participate in the Affordable Housing Demonstration program. Malchus was well-known throughout the home building industry as an innovative builder, and offered a project significantly different than the first Birmingham project.

Based on Malchus' experience and reputation and the interest of Birmingham to support a second demonstration, HUD designated this project as an "Affordable Housing Demonstration" in December 1982.

Malchus originally planned to build 40 single-family detached units on the 20 acre Williamsburg Square site. After learning about the goals of the Affordable Housing Program, he changed his proposed plan to include 111 single-family attached units. He described the new plan to the local neighborhood association in March 1982 and received an extremely negative reaction; the neighborhood much preferred his original plan.

Malchus formally applied to the Birmingham Zoning Advisory Committee and then the city council for approval of the 111 unit proposed plan. Both groups rejected his plan. However, a search of the history of the site determined that the tract had been subdivided into 161 25-foot lots before the city established its present zoning and subdivision regulations. Malchus was legally entitled to build the 161 lot subdivision. He successfully argued that the 111 proposed units were not going to be a neighborhood "eyesore" and, in fact, would contribute to property values, especially when compared to the previously approved 161 lot subdivision. The city, therefore, reconsidered and granted Planned Residential Zoning (PRD) for the site. The city council approved the proposal in November 1982. When approvals were obtained, the project was officially designated as an Affordable Housing Demonstration site in December 1982.

Williamsburg Square

New homeowners were asked, "What influenced you to buy in Williamsburg Square?" Answers varied but all commented on the affordability of the units, energy efficiency, quality of construction, and cleanliness and neatness of the construction site. Fireplaces, ceiling fans, and microwaves topped the list of most popular amenities. All supported the builder's exterior color scheme restrictive covenant which insures exterior continuity throughout the subdivision. As of December 1, 1984, 50 units had been sold, mostly to first time home buyers.

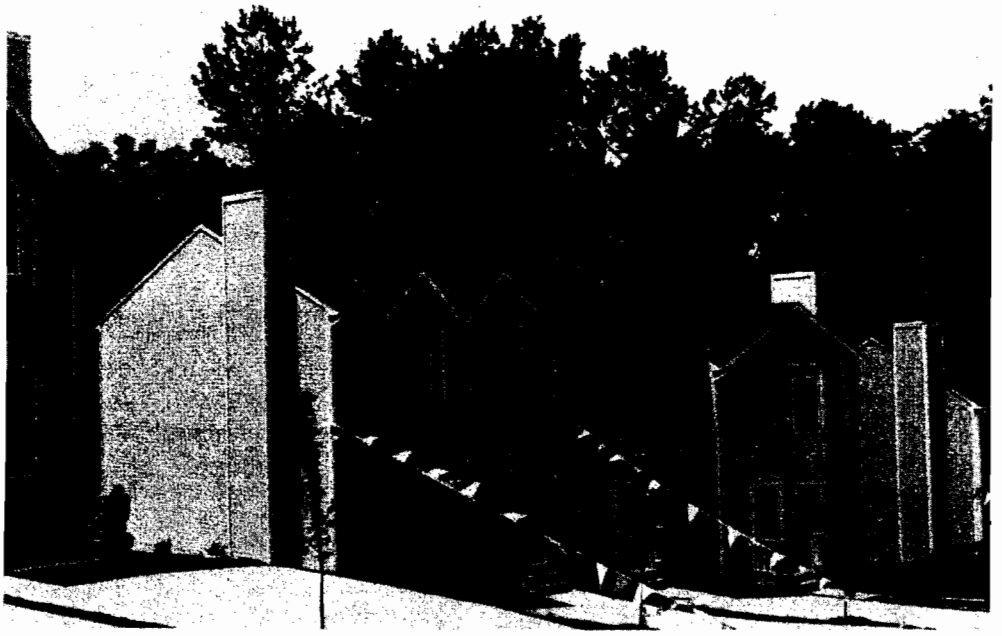
One of the first Williamsburg Square townhouses was used as the sales office. There were no furnished decorated model homes.

Bi-weekly major newspaper articles and radio advertising announced Williamsburg Square. Emphasis was on the 18th century charm of the development and its location in a wooded area of town "away from the hustle and bustle" of the city but convenient to schools and shopping. Other featured attributes were the lower sales prices, inclusion of appliances and microwave oven, and security provided by only one entrance and exit road.

After the designation of Williamsburg Square as a demonstration project, Malchus submitted a list of eight variances to city regulations to the Planning Commission in February 1983, based on technical assistance from HUD, NAHB, and NAHB/RF.

The Commission accepted six of the requested variances for the purpose of the demonstration only, and rejected the other two because they did not comply with the Standard Building Code. (Birmingham utilizes this code, developed by the Southern Building Code Congress International.)

Site development work began on March 1, 1983, with the first units ready for sale by January 1984.



Williamsburg Square sales model

Chapter 3

Innovations and Their Impact on Costs

One purpose of the Affordable Housing Demonstration Program is to collect and evaluate information and data related to the approval process, residential development practices, and construction techniques. The following discussion seeks to identify modifications in regulations and standards that might result in reducing costs to new home buyers.

Change List Approval Process

In February 1983, after obtaining city approval as a PRD project, Malchus submitted a list of requested variances to the city that would reduce the cost of developing Williamsburg Square. Items on the list were referred to appropriate city departments for review and approval or disapproval.

All changes requested by Malchus were considered carefully and six of the eight requested changes were accepted for the demonstration project. In addition, the city made a suggestion on the entrance to the property that resulted in considerable cost savings. These variances and their impact on costs will be discussed later.

Administrative and Processing Changes

The city designated the project as Planned Residential Development (PRD), allowing increased density from 40 to 111 units. Rezoning to a PRD also accelerated processing time from the normal 6 to 18 months to 5 months. According to Malchus, the reduction in processing time resulted in a total savings of $9,600 (or $86 per unit) in interest on the land.

Site Planning and Development Changes

Because of the increase in density from 2 to 5.5 units per acre, land and infrastructure costs were reduced by $3,198 per unit, saving a total of almost $355,000 on the entire project.

Original plans called for two entrances into the project. The city suggested only one entrance which eliminated additional paving and curbs. Malchus accepted the recommendation, thereby reducing paving costs by $70,000, or $631 per unit.

Approval was granted for off-street parking in front of the units in lieu

Williamsburg Square homes, showing front parking pad

of rear parking, eliminating the need for a rear alley. The city approved vacating already platted but not constructed streets and reduced width rights-of-way. A 20-foot setback for the front parking pad was approved which enabled Malchus to grade and landscape the area more attractively.

Malchus requested 24-foot streets on 40-foot rights-of-way in place of 27-foot streets on 40-foot rights-of-way. The city rejected the request on the basis that the latter was a citywide dimension requirement. The city also rejected Malchus' request to tie several units into common sewer laterals which would have saved $250 per unit.

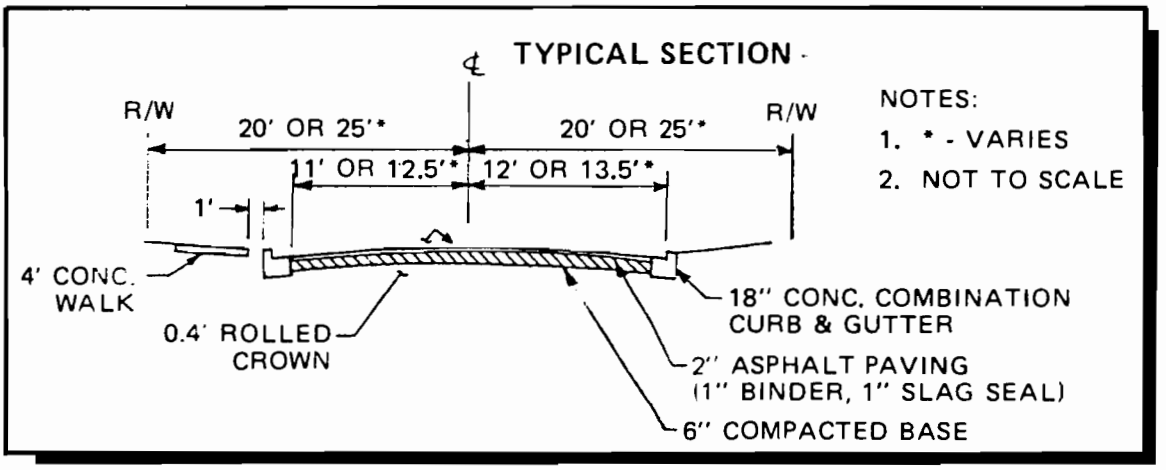
At first, the city rejected use of roll curbs in place of standard curbing on the basis that it would reduce the water carrying capacity of the street. Later the city allowed roll curbs in front of the townhouses, provided a small section of storm sewer was extended and vertical curbs were installed at required intersections. Savings amounted to $100 per unit.

Land development costs were further reduced by using a one-step operation of clearing, excavating, and grading for streets and foundations. This was accomplished by the use of one piece of equipment called the "Pair" which bulldozed, graded, hauled, and spread dirt, eliminating the need for other expensive equipment such as road graders, front end loaders, and dump trucks. This resulted in a savings of $22,200, or $200 per unit saving.

Purchasing all tap fees prior to a scheduled price increase from $37.50 to $100, saved $6,938, or $63 per unit.

Building Design and Construction

Because of the neighborhood resistance to the density increase, Malchus decided to build the units using conventional techniques rather than run the risk of negative



Williamsburg Square typical street section

publicity that innovation might produce. Therefore, he did not ask for any variances to the Birmingham building code nor did he use methods acceptable under the code but not typically used in Birmingham.

Williamsburg Square homes under construction

Chapter 4

Details of Changes and Their Costs

Cost Savings Summary

Following is a summary of Williamsburg Square cost savings due to reduced governmental regulations and changes from typical construction practices used in the city of Birmingham. See Chapter 3 for discussions.

Cost Saving Summary

	Cost Savings	
	Total	Per Unit*
Interest savings due to reduction in processing time	$ 9,600	$ 86
City plan versus Malchus plan for entrances	70,000	631
Land development (clearing, excavating, grading)	22,200	200
Rolled curbs versus vertical curb and gutter	11,100	100
Density	355,000	3,198
Water tap fees	6,938	63
TOTAL	$474,838	$4,278

*111 Dwelling units

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Approval Process

Routine Applications

Applications for residential building permits in cases where all zoning and subdivision regulations are met can be routinely handled in a matter of hours. The application is submitted to the Department of Buildings and Inspections Services Office. A curb cut fee of $5.00 per residential driveway, $50.00 sewer tap fee, and a Jefferson County sewer impact fee of $100.00 per fixture are paid in addition to required building, plumbing and electrical permit fees. The Engineering Department provides a street address. Plans for the development are reviewed and an Excavation Permit is issued. Coordination of plan review by the city engineer and traffic engineer is handled by the Department of Buildings and Inspections Services Office.

Nonroutine Applications

Nonroutine applications are processed by several regulatory offices. The Department of Buildings and Inspections Services Office will review with the builder/developer the steps that will be required to seek approval of the planned development. The city functions are:

1. Zoning Advisory Committee - If the proposal requires the rezoning of land in the city, the request must be made to the Zoning Advisory Committee. The committee meets twice monthly. Public notice of these meetings is a requirement. The proposed development is reviewed and the builder/developer makes a presentation of his proposal and responds to inquiries. Opposition to the proposal is heard by the committee who recommends approval or rejection of the rezoning to the City Council.

2. City Council - Following the Zoning Advisory Committee hearing, the builder/developer has the proposed rezoning placed on the City Council's agenda for public hearing. This step may be taken either with or without committee recommendation for council approval and must be made six weeks in advance of the public hearing date. Once again, the builder/developer must make a presentation and respond to inquiries about the proposed development by the council members. Notification of hearing is given and opposition heard. The City Council takes final action to either grant or deny rezoning. The minimum processing time for the Zoning Advisory Committee and City Council covers eight weeks. A reasonable average processing time is approximately twelve weeks.

3. Subdivision Committee - This committee is comprised of three people who approve or disapprove all subdivision designs including street construction, storm drainage and curbing. The committee meets every two weeks to review builder/developer plans that have an impact on city streets. Prior to a hearing, the builder/developer must submit an application, a preliminary plat showing topography and drainage, and a list of adjacent owners. He must pay a fee to cover the cost of recording and mailing meeting announcements to the adjacent owners. The committee may approve or disapprove the planned development.

4. Public Improvement Council Committee - This committee's approval is necessary if the plan calls for either the dedication of new streets or the relocating of existing rights-of-way. Fees for the vacating of any rights-of-way are charged based on adjoining assessments of land. New street dedication approval requires an additional two weeks because of the requirement to issue public notice. Three weeks are required for vacating existing rights-of-way.

5. Zoning Board of Adjustment - A builder/developer may propose the construction of a development which is not in complete agreement with any existing zoning classifications. In such cases, the Zoning Board of Adjustments, which meets every two weeks, must rezone.

6. Boards of Appeal - In addition to zoning and subdivision approvals, the builder/developer may plan to construct homes that depart from the Standard Building Code of the Southern Building Code Congress International which is used by the City of Birmingham. In this case, three boards of appeal -- Building, Plumbing and Electrical Boards of Appeals -- must be considered. Each board presides over appeals concerning their areas of specialty.

After the nonroutine development plan has been approved, the builder/developer can proceed to the Department of Buildings and Inspections as though a routine development plan were being processed.

Appendix II

Schedule

March 1982 - Malchus presented proposed Williamsburg Square plan to neighborhood association.

April 1982 - Proposed plan presented to Birmingham Zoning Advisory Commission.

June 1982 - Proposed plan presented to City Council for rezoning.

November 1982 - City Council approved rezoning to PRD.

December 1982 - HUD designated Malchus builder/developer of Birmingham Affordable Housing Demonstration.

February 1983 - Malchus submitted requested changes in local regulations to city.

March 1983 - Site development began.

January 1984 - Units ready for sale.

December 1984 - Fifty units completed and sold.

The Affordable Housing Demonstration
Case Study 2

Knox County, Tennessee

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Summary

Woodpointe, the Knox County affordable housing demonstration, is a 115 unit subdivision on a 20.6 acre parcel of land nine miles west of Knoxville, Tennessee. The units are single-family detached houses ranging in size from 896 square feet to 1,116 square feet and selling for $43,500 to $55,000. The builder was able to reduce costs by an average $2,490 per unit through expedited processing and by using several different methods and materials in constructing the units.

The builder, Phil Hamby, of Phil Hamby Construction, Inc., initiated this demonstration project by encouraging Knox County Executive Dwight Kessel and County Board of Commissioners Chairman John Mills to support the concept. At their request, the Board of Commissioners adopted a resolution of participation expressing its willingness to work with Hamby to review county building and subdivision ordinances in order to lower the cost of new residential construction.

Knox County, located in the eastern section of Tennessee with a 1980 Knoxville population of 320,000, has experienced growth of about 16 percent over the last ten years, with 65 percent of its residents owning their homes. The home buyers' tastes are generally conservative, and Hamby has responded with "Country," "New Orleans," "Early American," and "Victorian" designs. The project was opened for sales in June 1984, and 20 of the first 33 homes had already been sold by this time.

The Affordable Housing Demonstration
Four Case Studies

Birmingham, Alabama
Knox County, Tennessee
Lincoln, Nebraska
Sioux Falls, South Dakota

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Chapter 1

Project Description

The Community - Knox County, Tennessee

Knox County, Tennessee, is located on the Tennessee River in the east central area of the state, bordered on the east by the Great Smokey Mountains. The county seat is Knoxville.

The 1980 corporate population of Knoxville was 320,000 with an MSA population of 477,000. This is an increase of 16.4 percent over the last ten years. Knox County covers an area of 602 square miles. The climate is moderate with temperatures averaging between 58 and 60 degrees and maximum temperatures reaching 95 degrees two or three times a year.

The county operates under a chief executive with three department heads -- director of highways, director of personnel and purchasing, and director of welfare and institutions. The executive reports to the elected Board of Commissioners.

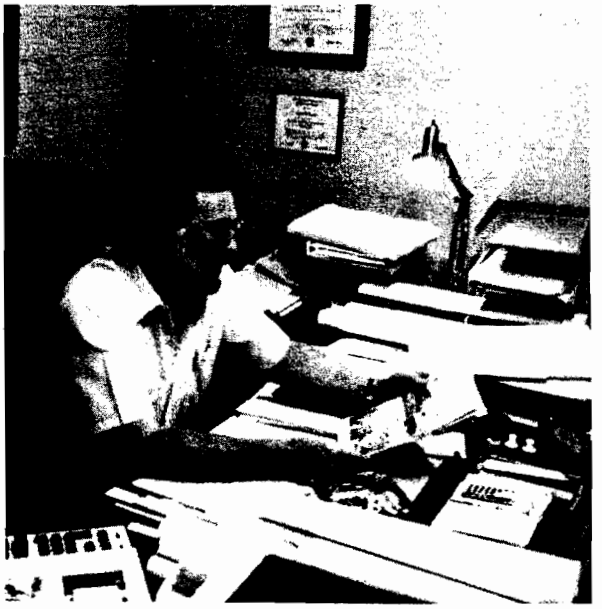
Industries in Knox County are fairly broad-based with Tennessee Valley Authority (TVA) the largest employer. Others include Rohm and Haas Plastics, Robertshaw Thermostats, and Standard Knitting Mills. The University of Tennessee in Knoxville and the Oak Ridge National Laboratory in Oak Ridge draw on Knox County for support. Annual population growth rate over the next decade is projected at 2.0 percent.

Average household income in the county in 1983 was $20,000. The average home price was $67,000 in mid-summer 1983. Approximately 65 percent of the people are home owners. One thousand nine hundred ten residential building permits, which represented a total value of $128 million, were issued in 1983.

The Knoxville/Knox County Metropolitan Planning Commission (MPC) oversees all residential subdivisions and approves subdivision concept plans and final subdivision plats. Developers are provided a checklist that is designed to assist them in working through the development process. The checklist identifies the government agencies involved, and references ordinances and regulations which apply to a specific project.

The Builder - Phil Hamby Construction Co.

Phil Hamby Construction Co., Inc., has been involved in land development and single-family and multifamily home construction for the past 23 years. The company is also involved in property management and real estate sales. In 1983, the company built 46 single-family detached and attached units.



Phil Hamby

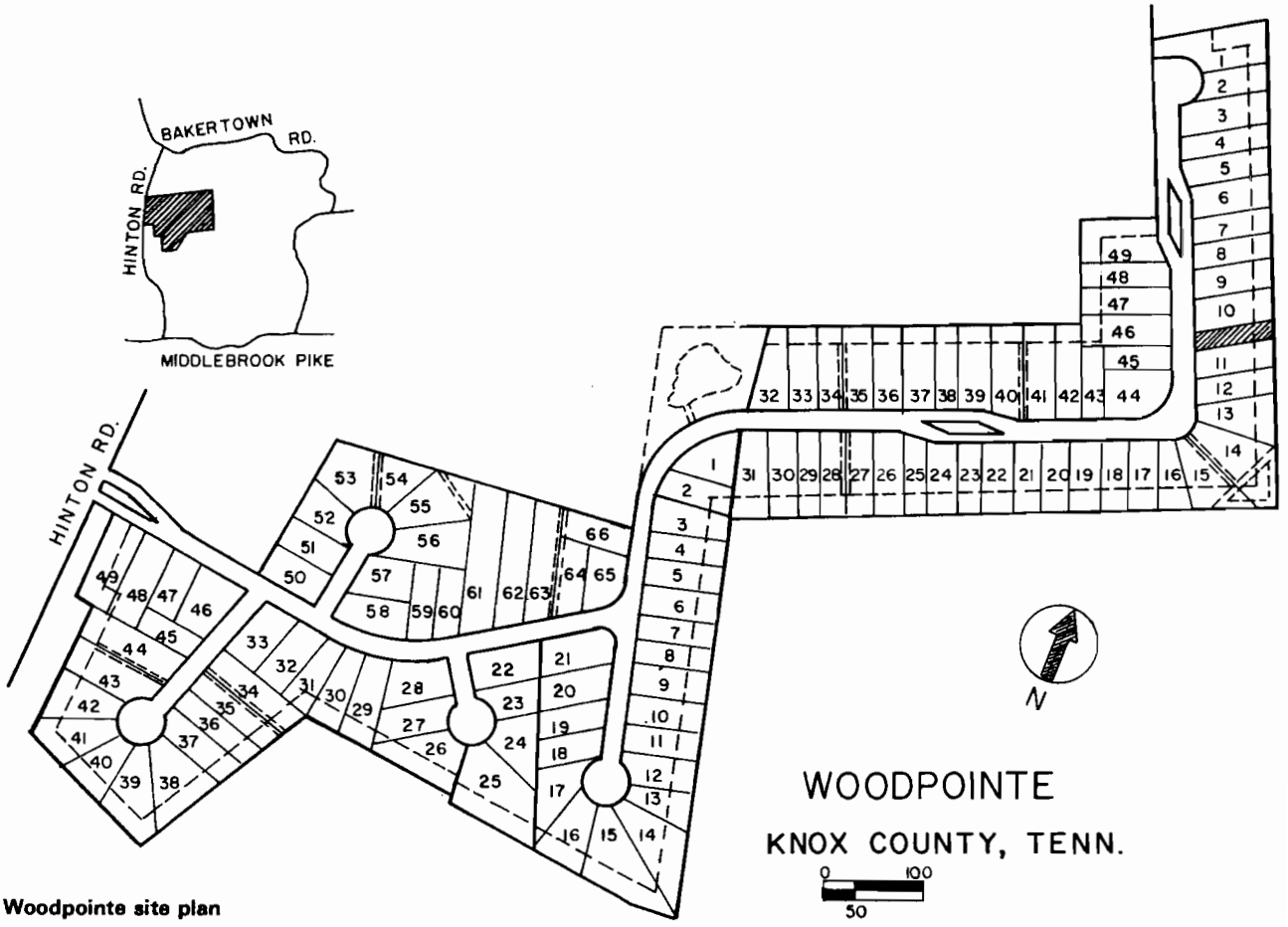
Phil Hamby Construction Co., Inc., is not the largest residential builder in the Knoxville/Knox County area, but the company is well known and has

a reputation for quality homes and energy saving construction. The company maintains good working relationships with all regulatory agencies, including the local office of Housing and Urban Development (HUD). The company heretofore has been granted every rezoning request and is known for its dedication to the housing industry.

Hamby has been a leader in the East Tennessee area for many years in new and innovative developments, building the first single-family detached homes to be inspected and certified by the Tennessee Valley Authority as meeting the rigid TVA energy conservation standards. In fact, Hamby built the only entire subdivision to be certified as energy efficient by TVA. Hamby was the President of the Home Builders Association of Greater Knoxville in 1983, and a Director of the State HBA and National Association of Home Builders. Hamby was selected in 1981 as the Knoxville Builder of the Year by the Knoxville Home Builders Association.

The Project - Woodpointe

The demonstration site, a 20.62 acre parcel of land, is located nine miles west of Knoxville in a wooded area with a view of the Great Smokey Mountains. The 115 unit subdivision was divided into two phases -- the first phase containing 49 units on 8.7 acres and the second phase containing 66 units on 11.92 acres. About 2 acres in Phase II were left as common wooded area for home owner use. The demonstration consists of both phases.



Woodpointe site plan

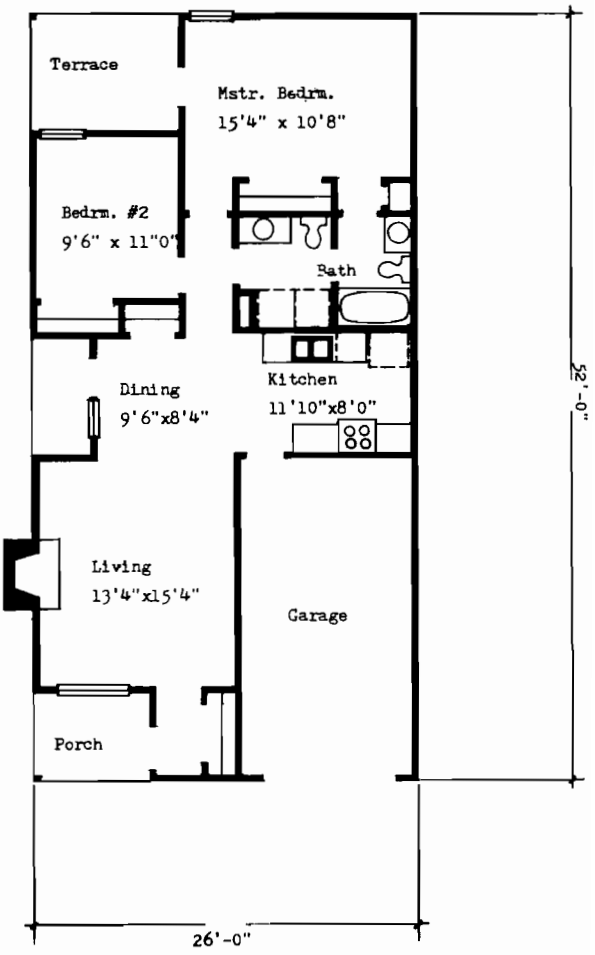
Zoning approved prior to acceptance in the demonstration program allowed apartments, condominiums, or single family housing. Because of the over-abundance of multifamily housing in the county, Hamby elected to build single-family detached units at 5.6 units per acre.

The project consists of all single-family 2- and 3-bedroom detached homes. They range in size from 896 to 1,116 square feet and sell from $43,500 to $55,000. The architectural design of the homes varies and includes "Country", "New Orleans", "Early American", and "Victorian" styles. All the homes have driveways with optional garages.

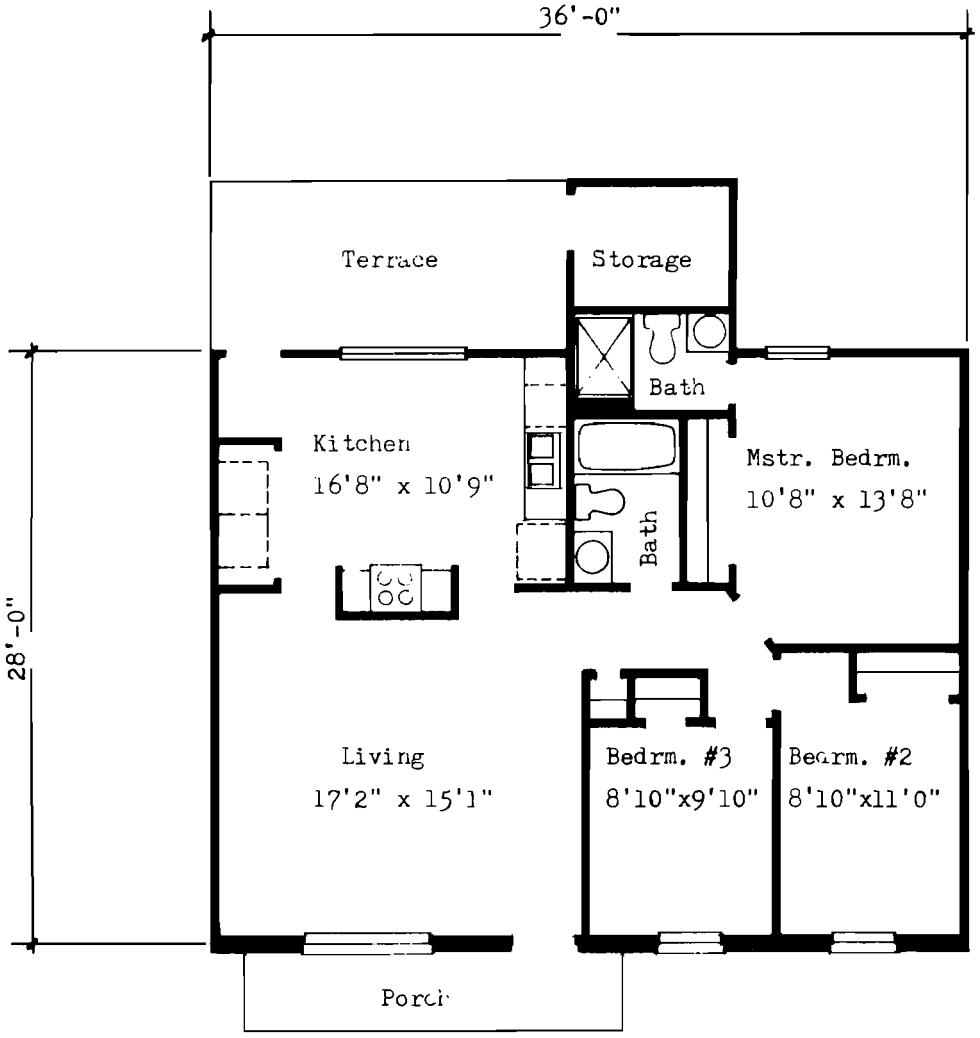
The houses at Woodpointe combine traditional elevations with open, contemporary floor plans that make the small houses feel spacious. The one and two level homes look out to open spaces left in their natural wooded state.

Sylvia McCormick of Darlene's Fashions, a Knoxville interior designer, decorated each model with a different scheme that distinguished it. The sales office was located in the garage of one of the models.

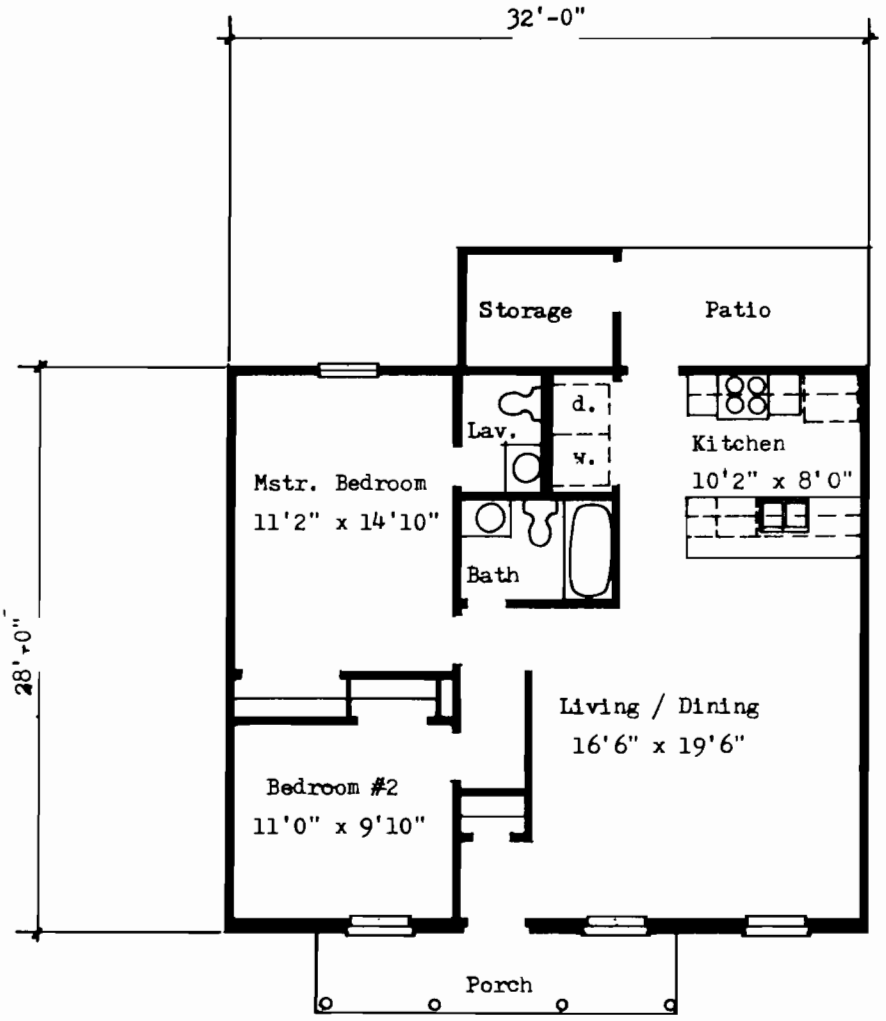
Conversations with local real estate agents led Hamby to believe the most active buyers were first-time home buyers in their late twenties and early thirties, and retirees with an average annual income of $20,000. The demonstration houses were designed to appeal to this market.


Terrace
Mstr. Bedrm.
15'4" x 10'8"
Bedrm. #2
9'6" x 11"0"
Bath
Kitchen
11'10"x8'0"
Dining
9'6"x8'4"
Living
13'4"x15'4"
Garage
Porch
52'-0"
26'-0"

Model "I"



Model "B", 1024 sq. ft.



Model "G", 896 sq. ft.

Chapter 2

Project History

Hamby successfully approached county officials about participating in the Affordable Housing Demonstration in February 1983. The Board of County Commissioners and the Metropolitan Planning Commission (MPC) favored controlling rising development costs, streamlining procedures, and regulatory reform. Chairman of the County Commissioners John Mills expressed his personal concern about housing costs in the county and pledged to make the Knox County demonstration a success.

Knox County's local officials agreed to support the program and give specific requests their full attention. County officials worked with Phil Hamby Construction to identify ways to reduce the cost of developing the site and building the housing by incorporating innovative site planning and construction methods.

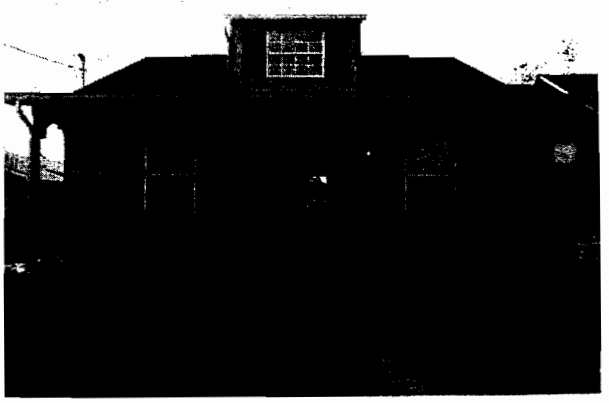
Those involved on the project include: Dwight Kessel, Knox County Executive; John Mills, Chairman, Knox County Board of Commissioners; Don Parnell, Metropolitan Planning Commission; Bob Smithers, Code Administrator; and Wayne K. Scharber, Director of Environment.

MPC Chairman Don Parnell

To keep sales prices within the reach of his target market, Hamby had to use cost saving techniques. The demonstration's technical assistance team from HUD and the NAHB Research Foundation assisted in suggesting cost-saving items.

Development of Woodpointe from inception to the opening of five model homes took approximately 10 months. Hamby joined the Affordable Housing Demonstration in April of 1983 and in a little over two months submitted a list of requests for changes from standard development practices to the Metropolitan Planning Commissioner (MPC).

Hamby then submitted his subdivision plan and building construction plans to the MPC. On July 1, 1983, final site plans were submitted and were approved two weeks later. The grand opening occurred in mid-June 1984, although marketing was conducted from late 1983 when the first models were completed.

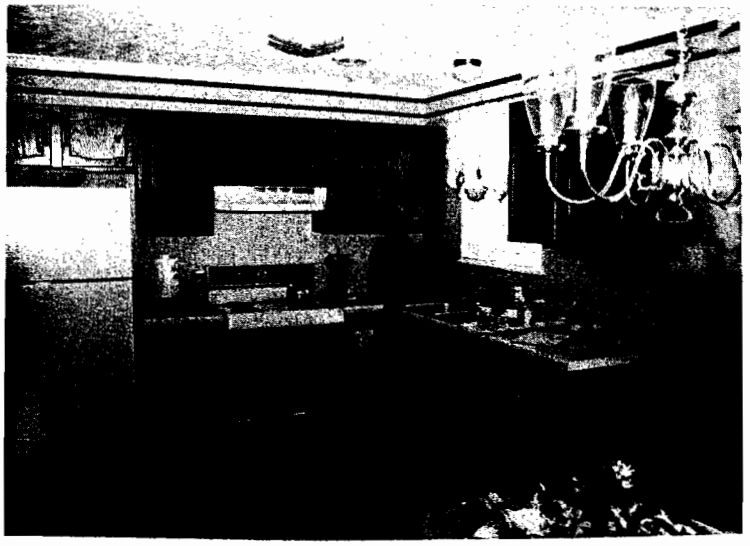


There was no formal market study for Woodpointe, but Hamby reviewed the multiple listing and spoke with local realtors to find out who was buying and what was selling. First-time buyers and retirees appeared to be the best market and detached homes the most popular product.

Hamby bought syndicated radio and television commercials into which his project's name was inserted and ran them on local stations for 8 weeks. The commercials produced more traffic than the sales force could handle at the five model home complex.

The sales force reported that potential buyers had varied responses to Woodpointe. Some people were influenced by the cost of the detached house and the energy efficient design; others liked the interior openness and the design of the kitchen and baths. All were impressed with the selection of interior and exterior color choices.

Woodpointe sales office



Interior designs

Chapter 3

Innovations and Their Impact on Costs

One purpose of the Affordable Housing Demonstration Program is to collect and evaluate information and data related to the approval process, residential development practices, and construction techniques. The following discussion seeks to identify modifications in regulations and standards that might result in reducing costs to new home buyers.

Change List Approval Process

Knox County officials used the Affordable Housing Demonstration as an opportunity to review their own regulations and processing procedures.

In June 1983, Hamby submitted a list of requested changes in regulations and procedures that would reduce the cost of developing Woodpointe. Items on the list were referred to appropriate county departments for review and approval or disapproval.

The county accelerated processing through the County Board of Commissioners by scheduling special staff meetings on administrative changes requested by Hamby.

All changes requested by Hamby for inclusion in the project were considered carefully and whenever revisions to existing codes or standards were denied, detailed explanations were presented to Hamby. Most land development changes were accepted based on documentation and logic submitted by Hamby. House construction change requests, however, were all rejected.

Knox County does not have its own building code inspection department but, at the time of the study, was setting-up an inspection system that would use Knoxville's city inspectors on a fee basis. The Southern Standard Building Code is used by the county, but the county is investigating changes that will bring them into agreement with the city of Knoxville so city inspectors can be used more efficiently.

Because of these plans, Hamby's list of requested house construction changes was submitted to the city for review. Since most of the requested changes were not in agreement with the Knoxville code and because city code officials were negative toward any variances, Hamby withdrew the entire construction change list request. Items that were on the change list are presented later in this chapter.

Administrative and Processing Changes

Knox County has a four step review process if rezoning is required and a three step process if rezoning is not required. Since Hamby did not require rezoning, Woodpointe would have normally gone through the following three-step procedure:

1. "Use on Review" Plan. This is a concept plan which shows, in general, the builder's intentions without detail. The "use on review" is intended to provide the Planning Commission and the County Commissioners with a basic understanding of how the land will be developed.

2. Composite Design Plan. After approval of the "use on review" plan, the developer submits a composite site plan showing lots, streets, utilities, drainage, etc.

3. Final Plat. Upon approval of the composite design plan, a final plat plan is submitted with all details of development included.

For the demonstration, Knox County combined steps 1 and 2 above into one submission, resulting in a savings of at least 45 days of processing time.

A 30 day appeal period after each process allows time for neighborhood response to the various submissions. A change in policy for the demonstration reduced the appeal time from 30 to 15 days after each process -- saving an additional 30 days.

Total interest savings of $9,000 were realized because of the 75 day reduction in processing time. The builder estimated additional savings of $42,000 in overhead costs, property taxes, and labor and material inflation costs because of the earlier start. Reduction in processing time, therefore, amounted to a total savings of approximately $51,000 or about $443 per unit.

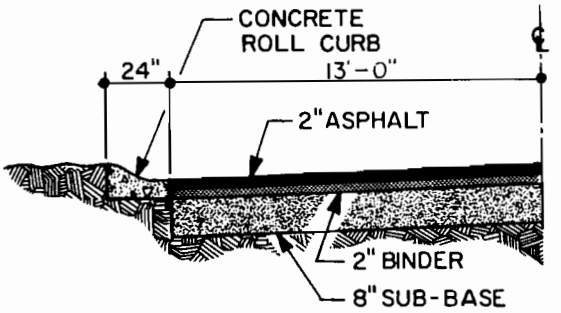
Instead of requiring the usual performance bond for streets and drainage, the county accepted an escrow agreement letter from Hamby's bank. Eliminating the 3 percent bond fee saved $53 per dwelling unit. This procedure has since become an acceptable alternative for all developers in Knox County.

Site Planning and Development Changes

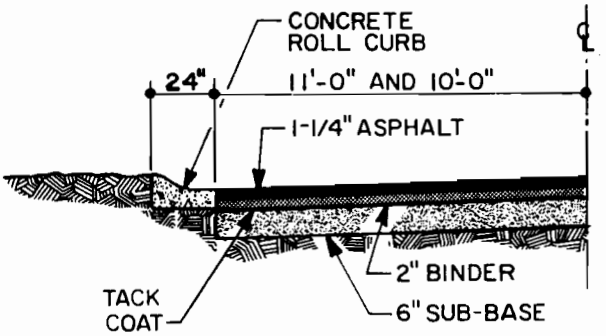
Site planning and land development represent major areas of potential cost reduction for most builders/developers. These costs are often in direct proportion to the complexity of local regulations, zoning ordinances, and levels of required standards. Because Knox County allowed development plan options and was receptive to innovations, Hamby was able to cut the costs of developed land in Woodpointe.

Savings were realized in several phases of land development. Some savings were due to regulatory variance while others were due to the use of techniques and materials not normally used in Knox County.

On all streets, extruded mountable (roll) concrete curbs were used in conjunction with abutting swales. This was cost-effective when compared to the cost of culverts for each driveway, saving about $150 per unit.



KNOX COUNTY STANDARD



DEMONSTRATION

Street widths were reduced from 26 to 20 feet on permanent dead end streets and from 26 to 22 feet on all other subdivision streets. Paving thickness requirements were reduced from 8-inch base, 2-inch binder, and 2-inch asphalt top coat to 6-inch base, 2-inch binder, tack coat, and 1-1/4-inch asphalt top coat. The asphalt top coat was applied after 75 percent of construction was completed.

In addition, the horizontal curve radius requirement for streets was

reduced from 150 to 100 feet. For cul-de-sacs, paving was reduced from a radius of 40 feet to 30 feet. Also on cul-de-sacs, paving width of 16 feet with a 14 foot island was allowed versus solid paving. On divided streets with one-way traffic on each side, paving widths were reduced from 20 to 12 feet. Rights-of-way were reduced from 50 to 30 feet on all streets and from 50 to 35 feet on cul-de-sacs. Total street paving costs were reduced by about $25,000 or $216 per unit.

Drainage and utility easements were reduced from 12 to 10 feet on each side of the right-of-way. Grass swales were already allowed for drainage. Hamby was allowed to eliminate corrugated metal culverts under driveways in lieu of a dip in each driveway abutting the swales. This resulted in a savings of $149 per unit.

Because street widths and rights-of-way were reduced, the total amount of site grading and clearing was also reduced, resulting in a savings of over $13,000 for the project.

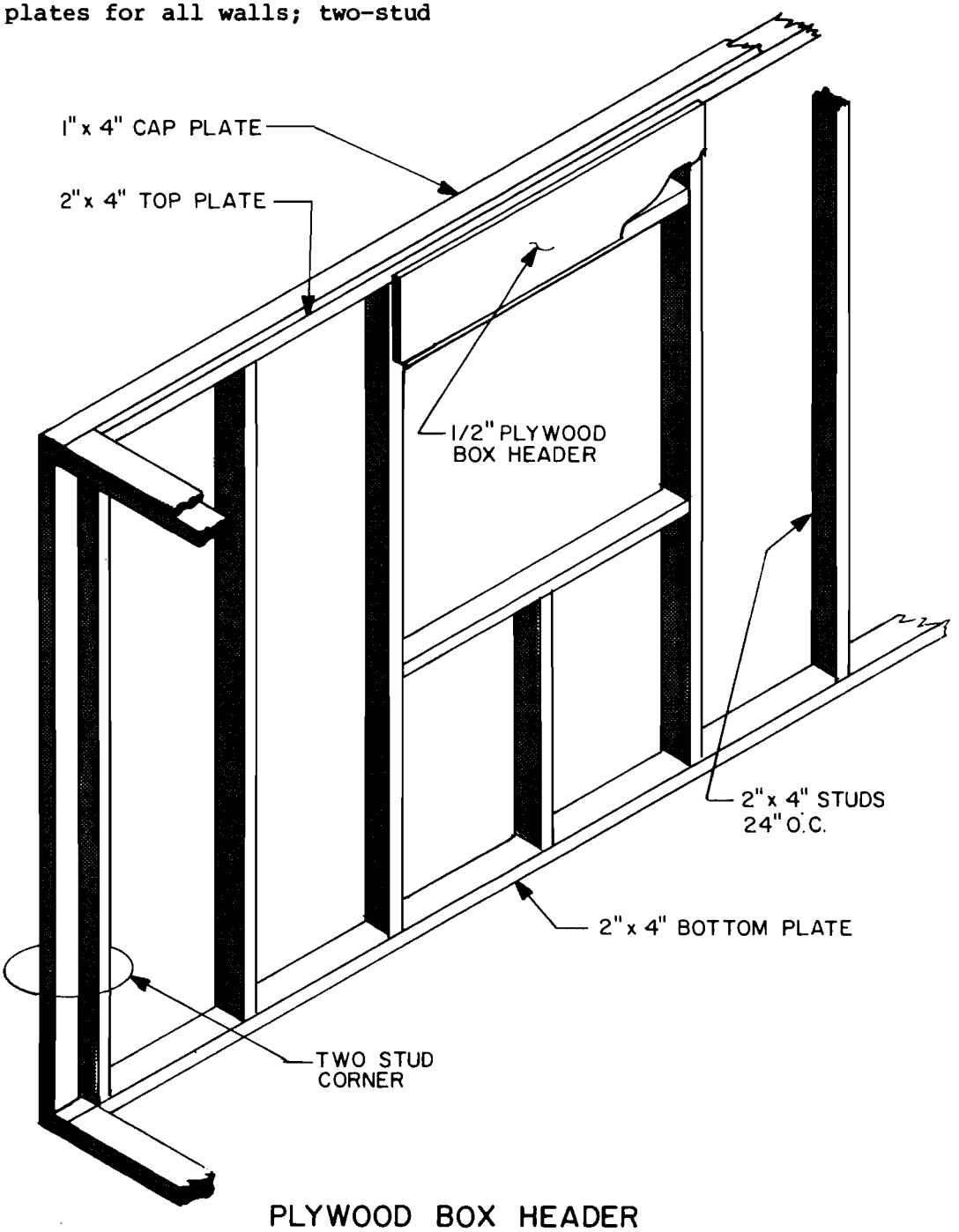
The State Health Department, which regulates Knox County's five water and sewer utility districts, approved the reduction in sewer pipe size from 8 to 6 inches and increased manhole spacing from 300 to 800 feet. This approval was based upon detailed engineering data provided by Hamby and upon favorable comments submitted by the five utility districts. After receiving approved plats from the State Health Department, work was started on the sewer system. Six inch sewer pipe was delivered to the job site. However, the consultant engineer for the utility districts appeared at the site and refused to allow the 6 inch sewer lines and 800 foot manhole spacing, basing his refusal on his years of experience as an engineer and inspector. Although previously approved, the utility commissioner decided not to override the consultant and approval was rescinded. Hamby believed that a lengthy appeal process with questionable probability of success would result in unacceptable delays. He decided, therefore, to install the 8 inch sewer line with 300 foot manhole spacing without appeal. Hamby would have saved $24,500 had he been able to use 6 inch pipe with 800 feet manhole spacing.

The 20.62 acre Woodpointe parcel was zoned under a Planned Unit Development (PUD) ordinance, so high density was already allowed. The net density was 5.6 units per acre with an average lot size of about 4,800 square feet. Because of the reduction in street widths from 26 to 22 and 20 feet, the reduction in cul-de-sac radii from 40 to 30 feet, the reduction in street rights-of-way from 50 to 30 feet, and the reduction in cul-de-sac rights-of-way from 50 to 35 feet, a total of 112,660 square feet of land was made available for housing. This had the effect of increasing usable land by over 12 percent, or enough for 23 additional units at the average 4,800 square foot lot size. Raw land and most of the infrastructure costs would have been spread over 92 units instead of the 115 that were actually built. Of the $1,471 savings in land development costs per unit, $1,042 was due to the increased density.

The approved changes used by Hamby in land development in no way jeopardized the health, safety, or welfare of the occupants of Woodpointe.

Building Design and Construction

Phil Hamby Construction Co., Inc., has used many cost saving construction techniques including 24 inches-on-center stud spacing for all interior partitions and for exterior walls with appropriate sidings; 1x4 bottom plates for all walls; two-stud corners except when using horizontal lap siding; elimination of partition posts; glue-nailed plywood headers; 2x4 top plate and 1x4 cap plate instead of two 2x4 top plates; and 2-foot outside modular dimensioning. Cost savings amounted to $425 per unit.



PLYWOOD BOX HEADER
AND
TWO STUD CORNER

As stated earlier, many requested changes were not in agreement with the Knoxville code and because city code officials were negative toward any variances, Hamby withdrew his entire construction change list. Following is the list of withdrawn construction changes.

1. Elimination of individual plumbing fixture shut-off valves
2. Reduction in plumbing vents from 3 to 1-1/2 inch diameter
3. Polybutylene hot and cold water supply piping in the dwelling
4. Optional CPVC hot and cold water supply piping in the dwelling
5. Optional automatic plumbing vents at certain individual fixtures
6. Exhausting bath and/or kitchen fans directly into well-ventilated attics
7. Reduction in number of duplex receptacles by locating according to anticipated usage rather than arbitrary spacing
8. Elimination of separate refrigerator outlet
9. Elimination of door chimes
10. Use of 15 amp electrical devices

Chapter 4

Details of Changes and Their Costs

COMPARISON COSTS

In this chapter, costs of each change in Knox County/Knoxville standards and Hamby's typical practices are discussed and compared. The objective of the analysis is to show how much costs were reduced by comparing Woodpointe "as built" to existing standards and practices.

ADMINISTRATIVE AND PROCESSING CHANGES

The Knox County Board of Commissioners reduced processing time by 75 days saving $9,000 in interest. Another $42,000 was saved because of reduction in overhead expenses, property taxes, and material and labor cost inflation. Total cost savings are shown below.

Reduction in Administration and Processing Costs

Cost Savings

	Total	Per Unit
Combined concept plan and composite site plan reviews	$ 5,400	$ 47
Reduction of neighborhood response time from 60 days to 30 days	3,600	31
Overhead, taxes and material and labor inflation costs	42,000	365
TOTALS	$51,000	$443

SITE PLANNING AND DEVELOPMENT CHANGES

Presented in this section are land development cost comparisons of Woodpointe versus the same project if built according to existing standards and practices.

Land Development Summary

	Demonstration	Comparison	Total Savings	Savings Per Unit***
Raw land	$155,125	$155,125	$ -0-	$ 337
Water Service	26,125	26,125	-0-	57
Sanitary Sewer(1)	83,571	83,571	-0-	182
Streets, grading, R.O.W. clearing	132,861	171,128	38,267	705
Storm Water Drainage	13,351	24,391	11,040	149
Landscaping	1,223	1,223	-0-	2
TOTALS	$412,256	$461,563	$49,307	$1,432
COST PER UNIT	$ 3,585*	$ 5,017**	$ 1,432	

*115 units demonstration

**92 units if built to existing standards

***Reflects both infrastructure changes and unit increase

(1)Had Hamby been allowed to install 6" vs. 8" sewer lines and 800' vs. 300' manhole spacing as originally approved, additional savings of $24,500 ($213 per unit) would have occurred.

Streets, Grading, and Rights-of-Way

If Hamby had built the streets in Woodpointe in accordance with standard subdivision options, total street costs would have increased 30 percent. The new plan reduced the width of permanent dead-end streets of 400 feet or less from 26 feet to 20 feet and subdivision streets from 26 feet to 22 feet.

Grading costs would have been increased by 22 percent had standard Knox County streets been used because wider streets and cul-de-sacs would have been needed.

In addition, costs for clearing rights-of-way were reduced because of the reduction in R.O.W. widths from 50 feet to 30 feet on streets and from 50 feet to 35 feet on cul-de-sacs. Cost changes and changes in street sections are shown in the following table.

Street, Grading, R.O.W. Clearing Cost Comparison

	Demonstration	Comparison	Savings
Streets			
- 26' wide street, 8" base, 2" binder, 2" asphalt	$ -0-	$109,137	
- 22' wide street, 6" base, tack coat, 1-1-4" asphalt	27,728	-0-	
- 20' wide street, 6" base, tack coat, 1-1/4" asphalt	24,436	-0-	
- 16' wide cu-de-sac street, 6" base, tack coat, 1-1/4" asphalt	31,973	-0-	
SUBTOTAL	$ 84,137	$109,137	$25,000
Grading	42,906	52,294	9,388
R.O.W. clearing	5,818	9,697	3,879
TOTALS	$132,861	$171,128	$38,267
COST PER UNIT	$ 1,155*	$ 1,860**	$ 705

*115 units demonstration

**92 units if built to existing standards

Storm Water Drainage

Drainage for Woodpointe was provided by grass lined swales alongside the streets. Normally, Hamby would have installed corrugated metal culverts under each driveway, but for the demonstration, he provided a "dip" in each driveway abutting the swales.

Storm Water Drainage Cost Comparison

	Demonstration	Comparison	Savings
Swales	$13,351	$13,351	$ -0-
Driveway culverts	-0-	11,040	11,040
TOTALS	$13,351	$24,391	$11,040
COST PER UNIT	$ 116*	$ 265**	$ 149

*115 units demonstration

**92 units if built to existing standards

ORIGINAL

U.S. Department of Housing and Urban Development
Office of Policy Development and Research

Birmingham, Alabama
Knox County, Tennessee
Lincoln, Nebraska
Sioux Falls, South Dakota

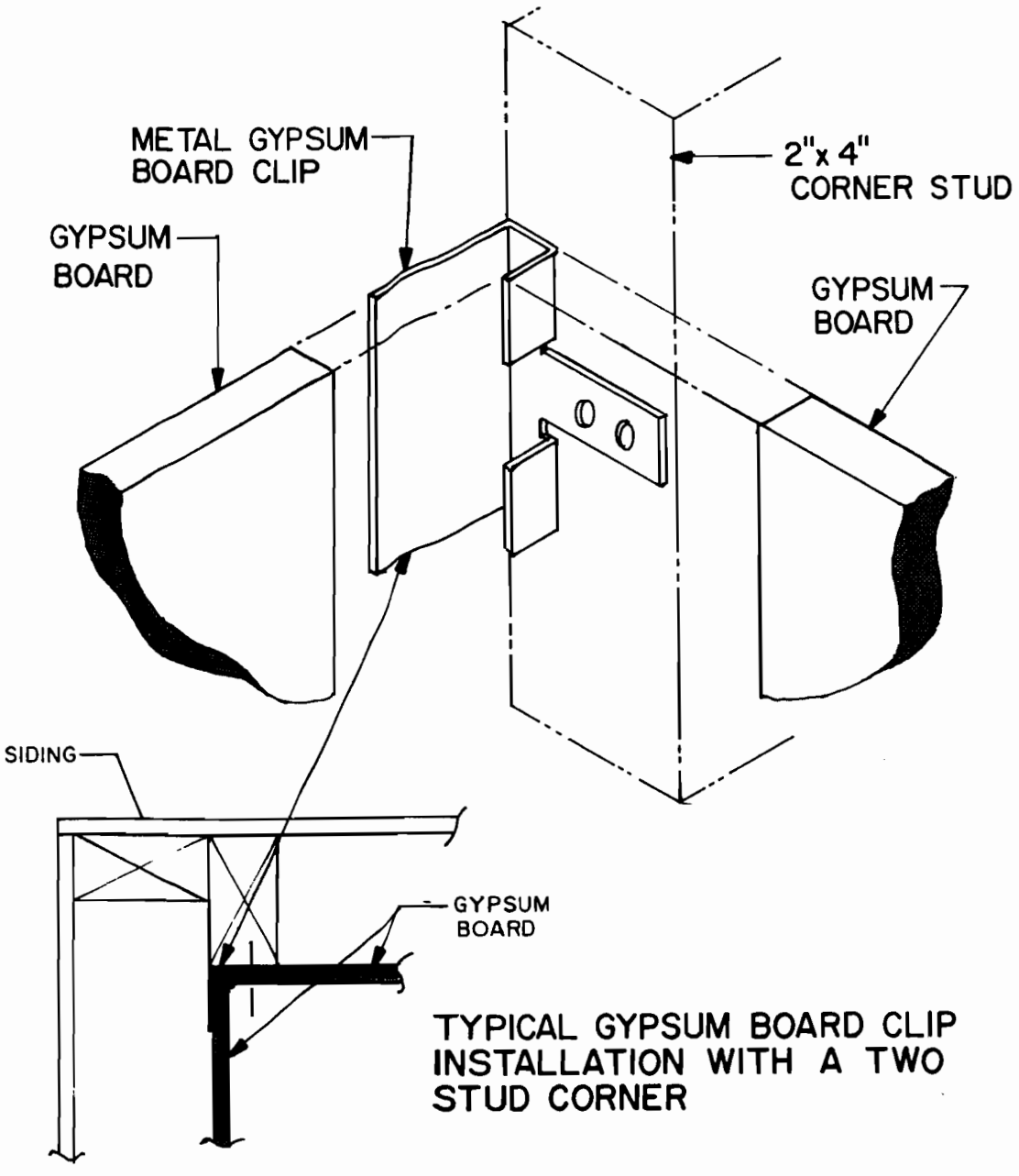
The Affordable Housing Demonstration

Case Studies

The Joint Venture for Affordable Housing

BUILDING DESIGN AND CONSTRUCTION

The Woodpointe homes were designed for production efficiencies as well as for marketing. Hamby had been using many optimum value engineering (OVE) methods for years in his production homes. The methods he used at Woodpointe include 24 inches-on-center framing in interior partitions, single layer 5/8-inch tongue-and-groove plywood instead of 3/4-inch floor sheathing/underlayment, plywood box beam headers instead of built-up or solid wood headers, two-stud corners, 1x4 bottom plate, 1x4 cap plate, and blocking at interior/exterior wall intersections instead of a partition post. Since he used horizontal hardboard lap siding on most of the demonstration homes, he framed exterior walls 16 inches-on-center. Otherwise, he stayed with OVE techniques.



TYPICAL GYPSUM BOARD CLIP INSTALLATION WITH A TWO STUD CORNER

Homes were designed for energy conservation with R-13 wall and R-30 ceiling insulation, double glazed windows, and insulated doors.

Although Knox County declined all other suggested cost saving items submitted by Hamby, the OVE methods listed above enabled him to reduce costs by an average of $425 per unit when compared to typical Knoxville construction practices.

In addition, because rights-of-way were reduced by 10 feet per lot, driveway costs were reduced by $190 per dwelling. The following table summarizes the direct construction cost savings.

Direct Construction Cost Savings

	Cost Savings	
	Total	Per Unit
Optimum value engineered framing and sheathing	$48,875	$425
10 foot reduction in driveway length	21,850	190
TOTALS	$70,725	$615

COST SAVINGS SUMMARY

Following is a summary of cost savings in Woodpointe because of reduced governmental regulations and builder/developer changes to typical practice in Knox County.

Cost Savings Summary

	Savings Per Unit
Administrative and processing	$ 443
Site planning and development	1,432
Building design and construction	615
TOTAL	$2,490

Appendix I

Project Schedule

Relevant Dates in Project Development

January 1983 - Knox County Board of Commissioners agreed to participate in Affordable Housing Demonstration project

January 1983 - Submitted preliminary Subdivision Plan to the Knox County Board of Commissioners. Building Construction Plans submitted concurrently.

February 1983 - Knox County Commissioners held workshop to discuss the Joint Venture for Affordable Housing

February 1983 - Knox County Board of Commissioners resolution of support for Affordable Housing Demonstration passed

February 1983 - Hamby sent letter of interest to HUD and was subsequently designated an Affordable Housing Demonstration participant

May 1983 - List of requested changes in requirements and practices developed by Phil Hamby submitted to Knox County Board of Commissioners

May 1983 - Knox County approved plans subject to stipulations presented by staff in a letter from the Knox County Code Administrator

June 1983 - Woodpointe Concept Plan passed by Board of Commissioners for Knox County

June 1983 - Knox County approved the Plat of Dedication, showing public streets

August 1983 - Final Site Plan approval, start of preconstruction sales

The Affordable Housing Demonstration Case Study 3

Lincoln, Nebraska

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Summary

Lincoln, Nebraska, was one of the first cities selected for participation in the Affordable Housing Demonstration program. Mayor Helen Boosalis showed a genuine interest in and commitment to increasing the city's affordable housing stock. In Lincoln, this meant housing in the $40,000-$45,000 range. Parkside Village, the Lincoln demonstration project, was able to meet this market by providing units priced as low as $38,450.

Parkside Village was planned as a 52 unit development of 12 duplexes (24 units), 8 triplexes (24 units), and 1 fourplex (4 units) on 4.6 acres. The units were priced from $38,460 to $46,000. Finished space in each model is less than 850 square feet, with an additional 500-600 square feet of unfinished walkout space.

Empire Homes, Parkside Village builder/developer, has extensive experience building quality homes in an affordable price range. Karl Witt, Empire Homes' President, was eager to receive technical assistance to learn how to further reduce costs while maintaining a high quality product. As a result of this assistance, he made a number of changes in his land planning, site improvements, and construction of the units.

The resulting cost-saving accomplishments in Lincoln, although modest individually, are significant when added together. Total savings amounted to $7,045 per unit. These savings were: administrative and processing changes, $1,116; land and development changes $4,954; direct construction changes $490; and indirect construction $485.

After Empire started construction in 1982, the Lincoln housing market suffered a drastic reversal; as a result, only seven homes were built in 1982, two more in 1983. The market picked up in 1984 when an additional seven units were built.

The cost-savings information in this report reflects the original project size in order to have a basis for calculating land and site development costs on a per-unit basis.

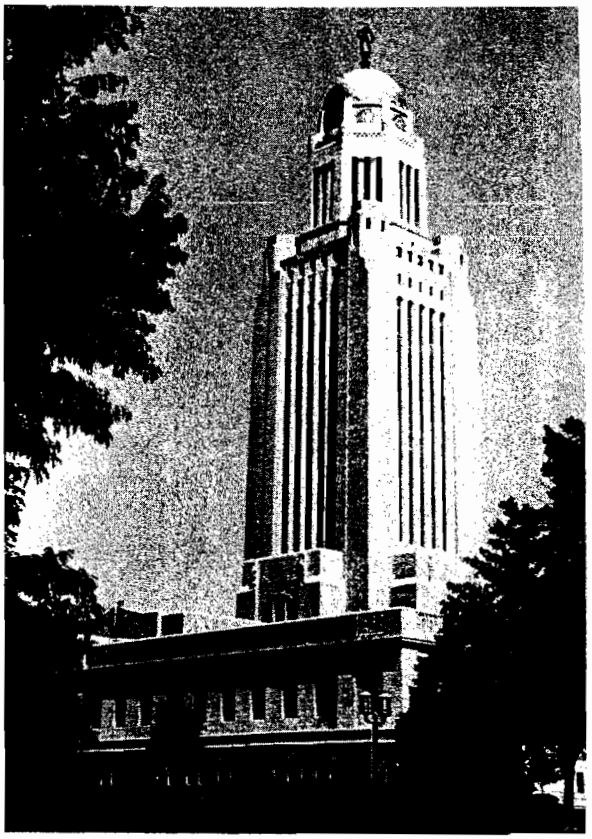
Chapter 1
Project Description

The Community - Lincoln, Nebraska

Lincoln, Nebraska's capital city, is located in Lancaster County, in the southeastern part of the state. The corporate area of the city covers 58.78 square miles; elevation peaks at 1,167 feet above sea level. Lincoln's yearly temperature averages 51.0 degrees; annual rainfall averages 28.61 inches.

Population of Lincoln's corporate area according to the 1980 Census was 171,932. The Lincoln Metropolitan Statistical Area (MSA) population was 192,884.

The city has a Mayor-Council form of government. The mayor and seven council members are elected for four-year terms on a non-partisan ballot. Government administration is divided among seven departments: finance, law, public works, planning, personnel, public utilities, and parks and recreation. The directors of the departments are appointed by the mayor with the approval of the council.



Lincoln capitol building

Lincoln offers a variety of employment opportunities. The city's major industries are meat processing, railroad car building, pharmaceuticals, electronics and electrical components, food processing, rubber products and recreational vehicles. Other important sources of employment include retail and wholesale trade, finance, insurance, real estate, construction, government, educational institutions, transportation and utilities, and the service industry.

Lincoln experienced record high residential construction until 1978. The permit record since then indicates a dramatic drop in new construction in single-family and multifamily homes in 1981 and 1982 as shown below. Construction has begun to pick-up in 1983 and 1984.

The Builder - Empire Homes, Inc.

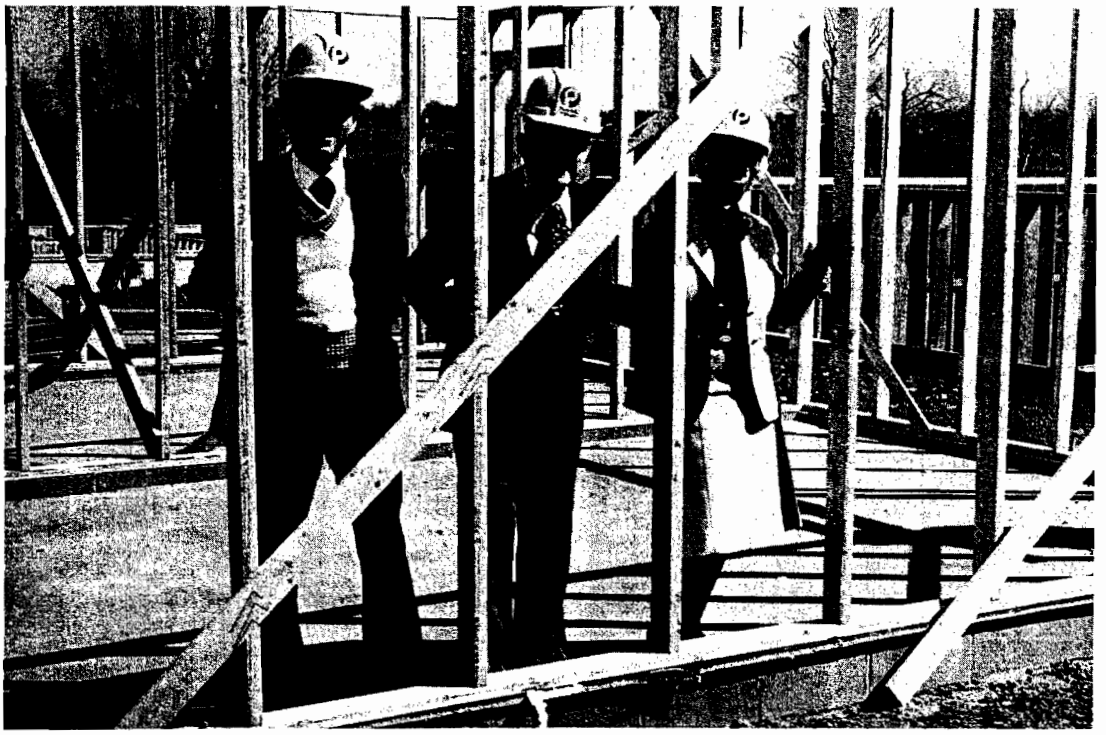
Empire Homes, Inc., a development company, has been building in the Lincoln area for about 30 years. The company goes with the flow of market demand. In 1979, for instance, Empire Homes built 25 single-family homes in the $40,000 range, three small apartment buildings, and some light commercial projects. In contrast, in 1981 the firm built one single-family $55,000 home, 30 apartment units, and one small commercial addition. In 1982, the 52 unit Parkside Village Development was their only project; seven units were completed that year, two more in 1983, and seven more in 1984.

Residential Construction Activity

Year	Single-Family Permits	Multifamily Permits
1978	1,402	593
1979	947	454
1980	805	246
1981	394	268
1982	169	50
1983	459	527
1984 (through 10/84)	444	675

All construction is subcontracted. Local engineering firms plat and survey, architectural firms plan sites and design the houses. Roads, storm water management, sanitary sewers, and water supply plans are prepared by engineering consultants. A staff draftsman and a project superintendent from Empire Homes assist in the coordination of subdivision work.

Empire Homes has sold many homes with FHA insured mortgages. The firm uses the FHA Standard (1401, 1402, 1403) Rulebook for establishing and maintaining home owner associations. Karl Witt, president of Empire Homes, Inc., remains personally involved with his homeowner associations after the homes are sold and management is turned over to the home owners.



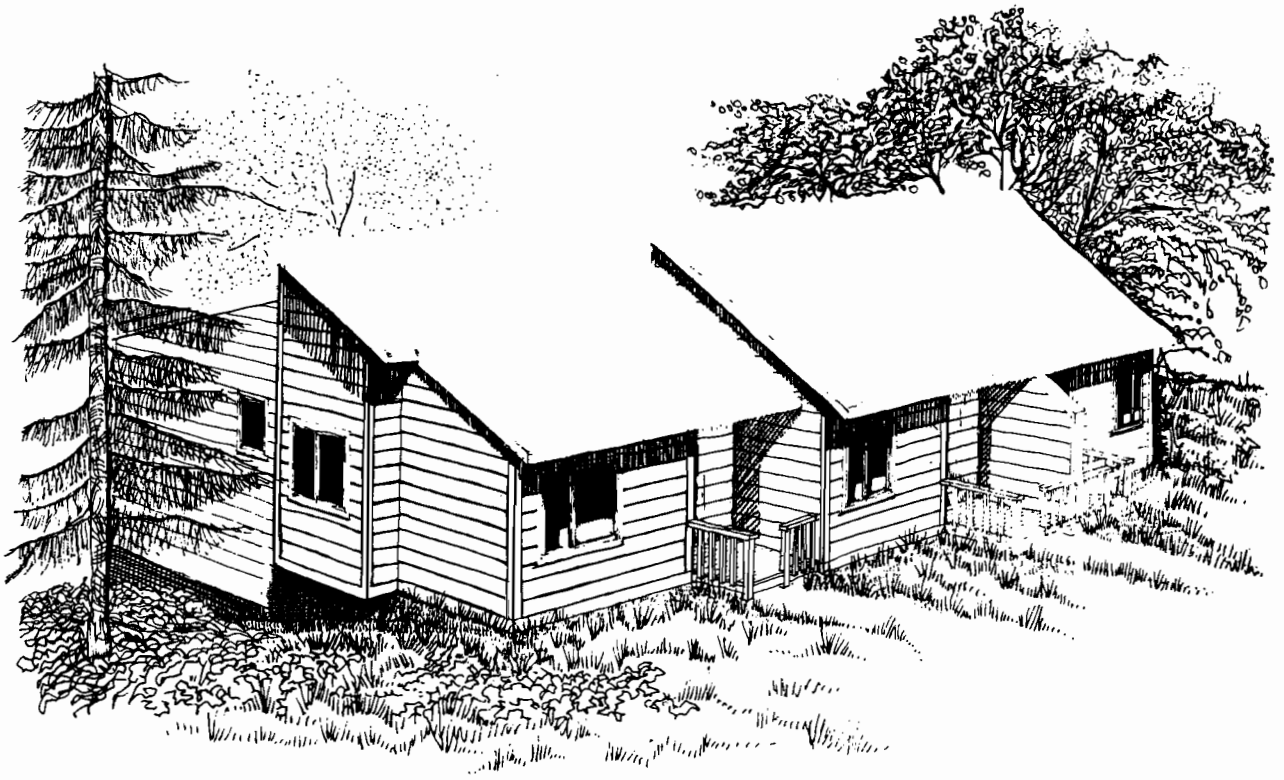
Wally Poure; American Wood Council; Karl Witt; and Mayor Boosalis (left to right)

The Project - Parkside Village

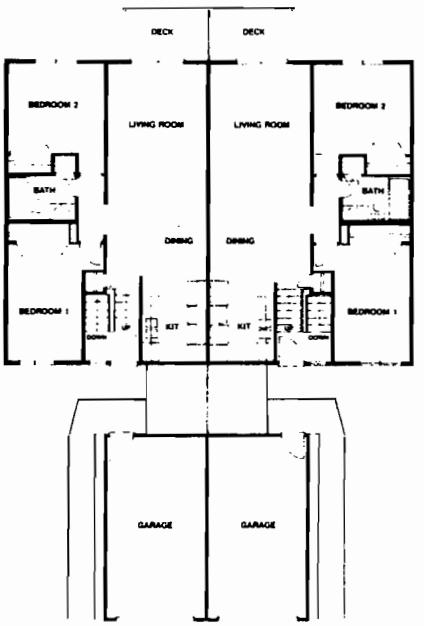
The Parkside Village Affordable Housing Demonstration project has been planned for 52 units -- 12 duplexes (24 units), 8 triplexes (24 units), and 1 fourplex (4 units) on 4.6 acres. The first units sold for $38,450 to $46,000.

The finished space in each model is less than 850 square feet with an additional 500-600 square feet of unfinished space in a walkout basement. In the unfinished space furring is installed, exterior walls are insulated, and rough plumbing for an additional bathroom is in place. This provides home buyers a small home which is immediately affordable while giving them the opportunity to finish additional living space at a later date. This concept has proven more popular nationally with buyers than the "expandable" home which is a small unit designed for additions.

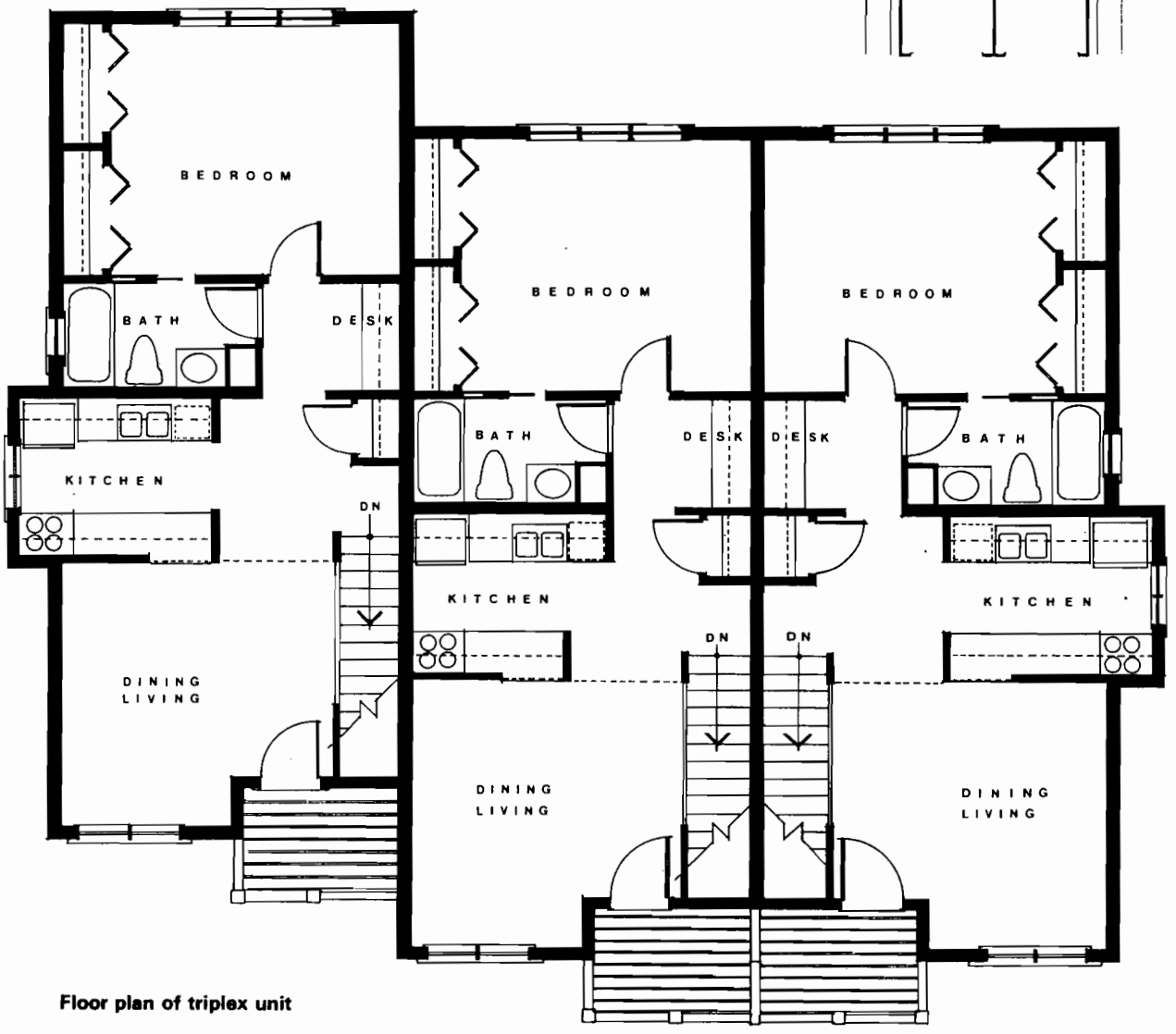
Other design features include: double-glazed windows, insulated doors, upgraded insulation in walls and ceiling, and high efficiency heating and air conditioning units. Building plans and the site design utilize passive solar gain. While these features do not result in lower initial costs, they reduce home owner operating costs.



Sketch of triplex



Floor plan of duplex unit



Floor plan of triplex unit

The project was developed under the city's Community Unit Plan (CUP) ordinance, a flexible zoning ordinance based on performance standards which are less explicit than subdivision development ordinances on how individual development must be accomplished.

Lincoln's "Design Standards for Zoning Regulations" state that the purpose of the CUP is to "encourage creative design of new living areas, as distinguished from subdivisions of standard lot sizes and standard street systems, and to permit creative design in buildings and open space."

Parkside Village logo

Chapter 2

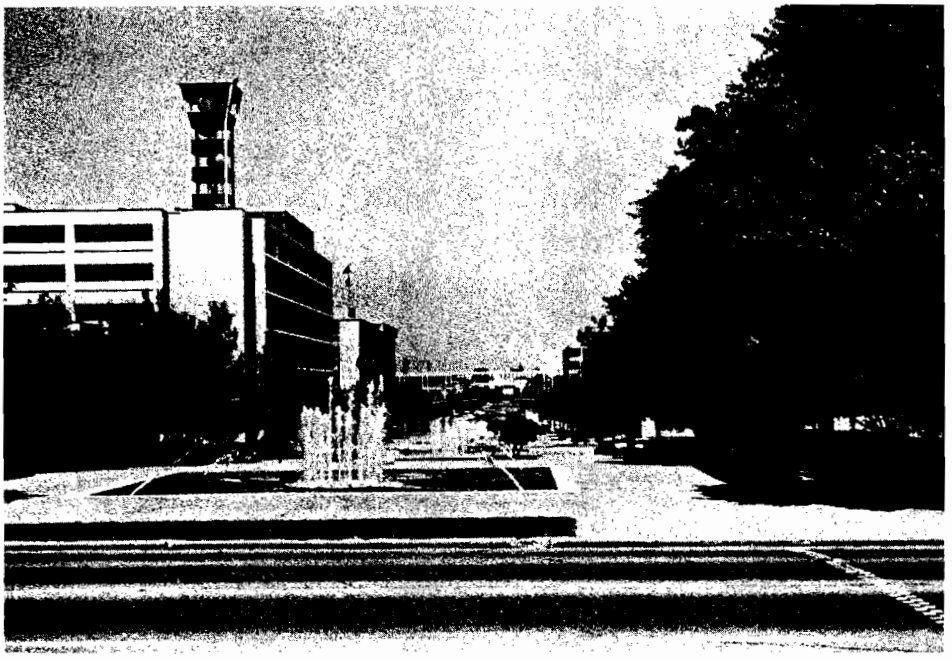
Project History

In January 1982, HUD designated the City of Lincoln as a participant in the Affordable Housing Demonstration because of the city's expressed willingness to examine and streamline the review processes for planning and building subdivisions. Lincoln, in cooperation with the local Home Builders Association (HBA), solicited builder/developers as possible participants in the demonstration. Because of Karl Witt's history as a quality residential builder and his commitment to building affordable homes, his firm, Empire Homes, Inc., was selected.

Prior to the start of HUD's Affordable Housing Demonstration, the Lincoln HBA had been involved in its own study to assess the costs imposed by government regulations upon the local home building industry. The Affordable Housing Demonstration was a logical extension and gave the association an opportunity to identify cost saving items and show which local regulations could be improved.

Participation in the Affordable Housing Demonstration provided the city and the developer the additional opportunity to take advantage of technical assistance from NAHB/RF, NAHB, and HUD.

NAHB/RF's industrial engineers met with Empire Homes to discuss overall project concepts and to review a set of sixteen research reports compiled by NAHB based on reports from industry experts and assembled into a Technical Assistance Package. These sixteen reports covered recent cost reducing innovations in land development and construction techniques.



City/county office building

The National Association of Home Builders offered site planning consultation. While the site plan was still in its early stages, Empire Homes accepted NAHB's offer to send their Director of Land Use and Environmental Affairs, Michael Shibley, to consult on the project. Discussions with Witt and his architect/land planner, Michael Bott, included:

- organization of green space;
- changes in unit types and orientation; and
- provisions for visitor parking.

Shibley also met with staff from the City Planning Department to answer questions on the proposed changes.

City commitment and willingness to consider new approaches are needed to change unnecessary government regulations that increase housing costs. In Lincoln, Mayor Helen Boosalis took a personal interest in the project.* Mayor Boosalis selected her Administrative Assistant, Elaine Carpenter, to act as the overall coordinator for the city's role in the Demonstration. This open communication aided Witt in more fully using the flexibility of the Community Unit Plan (CUP) ordinance under which Parkside Village was developed. Even though he had previously completed developments under this ordinance, he was unaware of all its ramifications.

Mayor Helen Boosalis

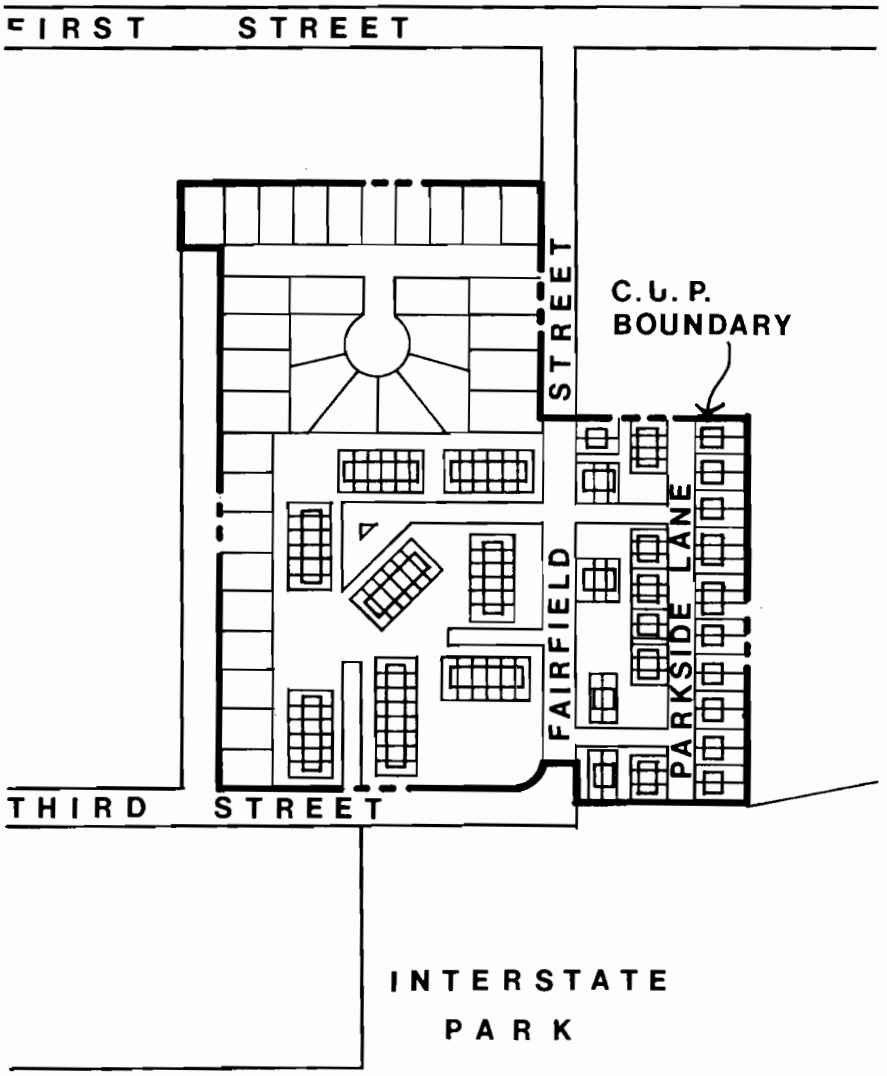
"We are very proud to be working on the Lincoln Demonstration project of Affordable Housing. It's an exciting experience to be a partner in this type of innovative project -- that we know will be good for Lincoln."

Helen Boosalis

The Planning Department staff made the following cost saving suggestions, after discussions with Empire Homes in early February 1982:

1. Consider expanding an old CUP from the adjacent property to Parkside Village. (Witt had

*Mayor Boosalis left office May 16, 1983; the current Mayor of Lincoln is Roland A. Luedtke.



NEIGHBORHOOD MAP

developed this property three years before.) This would provide the opportunity to "average the density" over the total parcel.

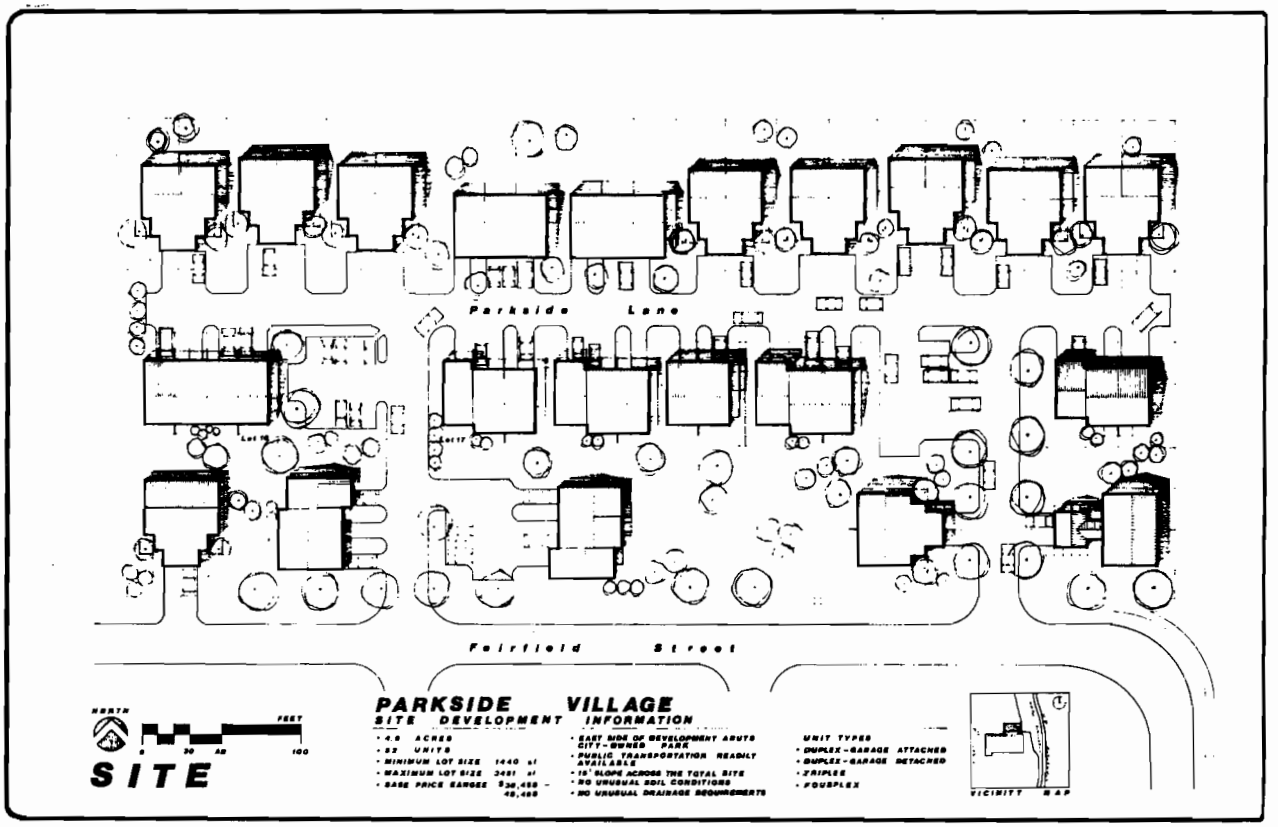
Lincoln Zoning Regulations require an average 5000 square foot building lot, including green space and recreational space. Since the old project had larger lots than the required 5000 square feet, "a transfer of density credits" would be allowed and would provide the high density requested for Parkside Village.

2. Expansion of the old CUP would also provide the opportunity to mix housing types. The earlier project included rental properties and single-family detached units. The duplexes and triplexes requested for Parkside Village could be accepted.

3. Eliminate a proposed parking lot on Fairfield Street (shown as open space) and transfer parking spaces to the interior of the site.

4. Eliminate the north-south street to the west between Lots 16 and 17 and provide a turn-around at the west end of the east-west street. (See Site Plan.)

5. Reduce the grading along the easterly portion of the site.



Site plan

In mid-February, 1982, following his meeting with the planning staff and a review of the Technical Assistance Package, Witt worked with representatives from NAHB, HUD, and NAHB/RF, and design consultants to develop a list of proposed variances from the Lincoln subdivision, building codes and approval process. The items requested were known to be acceptable practices in other areas, and would lower the cost of the houses without affecting quality, safety or marketability.

These proposed variances are discussed in Chapter 3. During an informal meeting, each item was discussed with the appropriate technical staff member from the city for clarification and suggestions. Following this meeting, a preliminary plat and CUP were submitted on February 19, 1982.

After preliminary approval of the plat and CUP on March 29, 1982, the city made its first exception by issuing a building permit for three groups of models: two duplexes and one triplex. Ordinarily Witt would have waited an additional three months for the final plat approval before starting construction.

Construction began immediately. Formal submission of the final plat to the city was on June 9, 1982, and final approval granted August 2, 1982. However, the first home was sold June 18, 1982.

Marketing

Empire Homes usually participates in Lincoln's Parade of Homes, prints sales brochures, and uses a local realty firm to sell its homes.

Karl Witt hired a public relations firm to market his houses in Parkside Village. Their advertising campaign included:

- design of a logo for the subdivision which was used in all printed media;
- newspaper ad preparation and placement;
- target radio spots -- preparation and placement;
- creation and placement of 10 billboards advertising the concept and the location of the project which shows the logo.

In exchange for Empire Homes building a model home using a pressure treated wood foundation, the American Wood Council contributed approximately 25 percent of the total marketing cost.

The public relations firm sponsored a press conference during a wall raising ceremony, which included Mayor Boosalis and Wally Poure from the American Wood Council.

Three model homes were completed and furnished in time for Lincoln's Parade of Homes in June 6, 1982. The first house sold on June 18 for just over $40,000, with an FHA insured mortgage.

Due to an unpredicted weakening of the local economy, all home sales in Lincoln fell sharply beginning in 1982. Parkside Village was well built, attractive, and heavily advertised, but was affected by the economic slump. By October 1984, 16 houses were completed and sold. Empire Homes is continuing to develop and build the subdivision, but on a greatly extended time schedule, with completion expected in 1986.

When is a basement not a basement?

When it's built with an all-weather wood foundation.

Stop by and see the Design Idea House, featuring imaginative wood uses from foundation to roof peak. It's sponsored by the American Wood Council and is on display now in Parkside Village.

Parkside Village

266, 268 Parkside Lane

(Go north on First Street to Fairfield, east on Fairfield two blocks to Parkside Village.)

Your wishes just came true:

Parkside Village Townhouses

Imagine Getting All This in a New Two-Bedroom Townhouse:

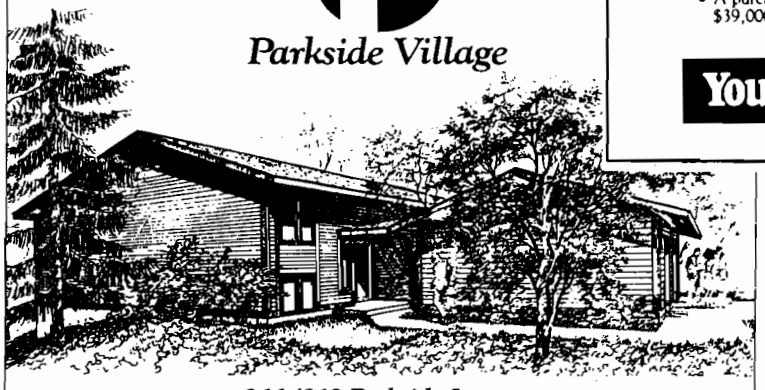
- Vaulted ceiling
- Microwave oven
- Carpeting and vinyl flooring with parquet wood floors optional.
- All Whirlpool appliances including a range, dishwasher, refrigerator, microwave oven, garbage disposal
- Attached garage
- Partial brick exterior optional
- Oak cabinets
- Energy efficient insulation, passive solar windows, high-efficiency gas furnace, high-efficiency air-conditioner, and conservationist water heater.

Imagine Finding a Financial Package Like This:

- As little as 5% down with qualifying credit. That could be less than $2,000.
- A purchase price as low as $39,000.
- Conventional, V.A. and F.H.A. financing. Plus you may be able to qualify for other innovative finance plans.

You don't have to imagine...

Parkside Village



266/268 Parkside Lane

"An Idea House" Sponsored by the American Wood Council

Advertising for Parkside Village

Chapter 3

Innovations and Their Impact on Costs

One purpose of the Affordable Housing Demonstration Program is to collect and evaluate cost data on residential development practices and construction techniques. The following discussion describes specific variances from the builder's normal practice, and in administration and processing, site planning and development, and building design and construction.

Change List Approval Process

The builder used many design and building techniques in Parkside Village that were acceptable under Lincoln's development regulations and building codes but were not previously used by Empire Homes. Use of these innovations is a direct result of the technical assistance provided by HUD and NAHB/RF and the increased communication among demonstration partners. Often, due to assumed limitations and misunderstood regulations, developers are unaware of the flexibility that exists in current codes and regulations, particularly when the city has a flexible development ordinance similar to Lincoln's CUP. Communication can result in major cost savings.

When Witt submitted a list of requested changes, the city not only carefully considered each request, but also made recommendations of their own. When a requested change was not approved, a detailed explanation was given.

Administrative and Processing Changes

The overall plan approval process was not shortened in the case of Parkside Village. However, the City agreed to allow construction of the models to begin immediately upon approval of the preliminary plat rather than approval of the final plat. Normally, only off-site improvements may begin prior to final plat approval. This modification of the approval process saved Witt at least three months.

The 3-month acceleration of the building permit approval process provided substantial savings in these areas. The estimated cost savings on the Parkside Village project included reduced carrying charges on land, property taxes, overhead, labor, and material costs. Because the demonstration represented a high proportion of the builder's total work, overhead allocations to the project were high, amounting to $160 per month per unit. Carrying charges and property taxes were $12 per month per unit. The builder saved about $200 per month per unit in labor and material cost inflation. Thus, the permit approval process acceleration resulted in a savings of $1,116 per unit in Parkside Village.

Site Planning and Development

Original zoning of the site would have permitted a maximum of 32 units. The city allowed the builder to include the parcel in an already approved Community Unit Plan (CUP) which allowed a higher density when averaged with an existing project. Therefore, 52 units could be built instead of 32, spreading the cost of raw land over 62.5 percent more units, resulting in a savings of $480.00 per unit.

Typically, Lincoln's residential streets are a minimum of 26 feet wide and consist of a three-step paving process:

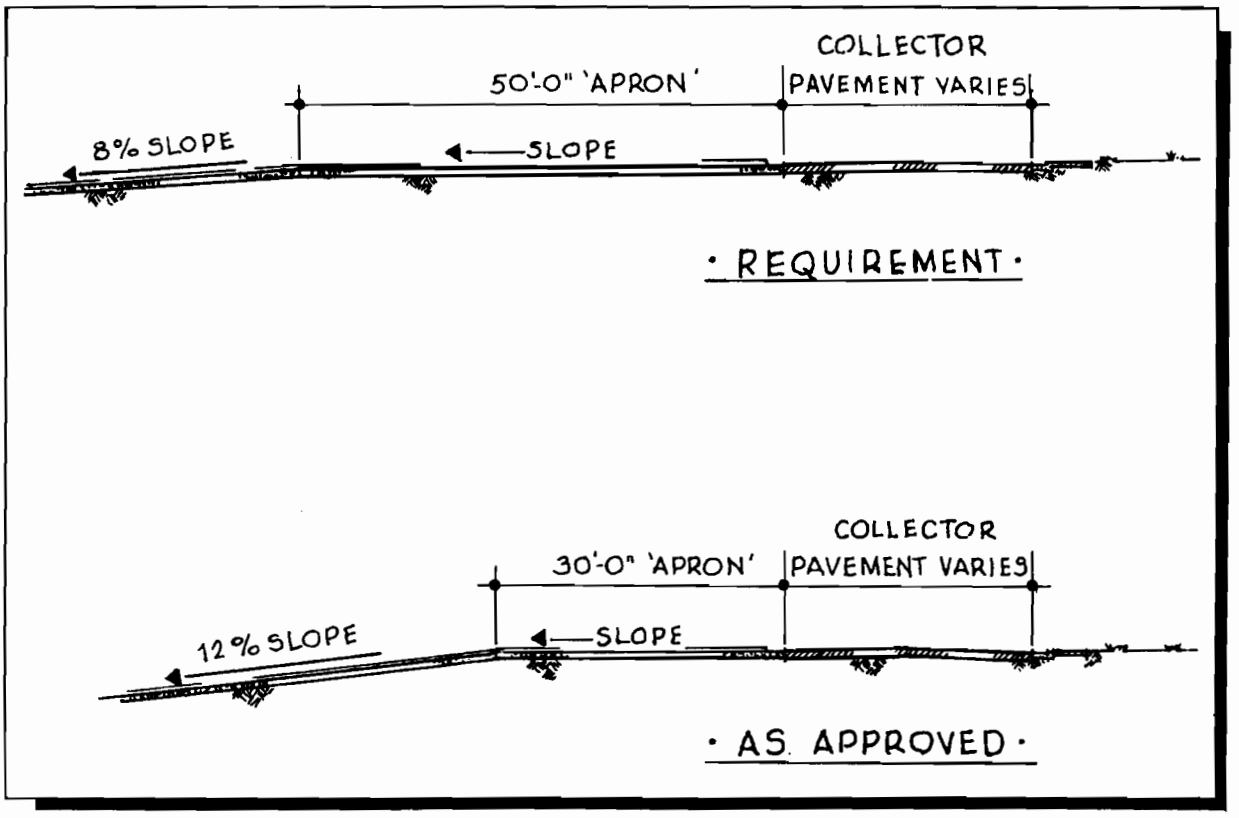
- pour concrete curb and gutter;

- o pour 5-inch concrete base; and
- o place 2-inch asphalt topping.

Maximum allowable street slope is 8 percent with a 50-foot minimum platform at intersections. For the demonstration, entrance streets consisted of 26-foot wide, 6-inch thick monolithic concrete streets and rolled curbs. The interior street was 20 feet wide and 6 inches thick with no curbs or gutters. Slopes of up to 12 percent were allowed with only a 30-foot platform at intersections. Two-inch thick asphalt topping was eliminated on all streets. Cost savings amounted to $1,892 per unit.

Modifications in sidewalks and streetlights did not require city regulatory changes, but were changes from the builder's standard practice. Sidewalks were placed on only one side of the street and reduced in width from four feet to three feet, saving $191 per unit. Street lights were mounted on houses instead of streetlight poles. Savings amounted to $186 per unit.

Assuming that total land development costs would be unchanged regardless of the number of units built, the zoning change from 32 to 52 units resulted in significant savings per unit. Total site planning and land development costs were reduced by $4,954 per unit.



Street Platform

Requested changes that were not approved included installation of steps in public sidewalks, one water meter for all 52 units, and 5-inch thick concrete streets.

Building Design and Construction

The Lincoln Demonstration was planned for 12 duplexes (24 units), 8 three-plexes (24 units), and 1 fourplex (4 units). Direct construction costs represent the average costs of the first seven units, a triplex, and two duplexes.

Studs 24 inches-on-center were used on the exterior top floor, garages, and interior walls. Metal drywall back-up clips, two-stud corners, single-layer plywood siding without separate sheathing and single-layer plywood floor were also used. Efficient use of lumber and plywood reduced total rough carpentry costs by $490 per unit.

Witt saved considerable initial costs to the home buyer by providing unfinished floor space in the lower level of each home. Plumbing rough-ins were provided for potential second bathrooms, furring was installed where concrete basements were built and basement walls insulated. Otherwise, lower level space was left for the occupants to finish as they wished. Savings due to unfinished space are not included in the total savings for the project.

Witt was planning to request the use of polybutylene pipe for all interior plumbing but received negative response from local plumbing contractors. Therefore, he never brought the issue to the city. He estimated that a savings of $300 per unit could have been realized.

Overhead, Financing

The total savings on overhead and financing costs were estimated at $485 per unit based upon the builder's records of percentages applied to all other costs. Cost categories that might be considered overhead items by some builders are typically included in direct construction costs by the Lincoln demonstration builder. These include such items as plans and specifications, permits, insurance, temporary utilities, supervision, etc.

Units under construction

Details of Changes and Their Costs

COMPARISON COSTS

In this chapter, cost savings of each variance from Lincoln's standards and Empire Homes' typical practice are discussed and compared. The objective of the analysis is to show how much costs were reduced by comparing Parkside Village "as built" to existing standards and practices.

The major portion of this case study, including the cost analysis, was prepared in 1982 when only seven homes had been built. Because of a dramatic reversal in the Lincoln housing market, only two more units were built in 1983 and seven more in 1984. This means that the cost data contained herein are not representative of what actually occurred in Lincoln but what would have occurred had construction and marketing continued at the originally anticipated level.

In the hierarchy of cost reducing techniques, density is the most important item. In Parkside Village, Empire Homes was allowed to increase the density from 32 units to 52 units, thereby spreading fixed costs over 20 more units. However, since only 16 units were actually built in three years, this cost analysis became an exercise in "what might have been."

ADMINISTRATIVE AND PROCESSING CHANGES

Because the City of Lincoln allowed Empire Homes to start construction immediately upon approval of the preliminary plat rather than waiting for final approval, three months in processing time was saved. As noted in Chapter 3, estimated cost savings included reduced carrying charges and taxes on land, overhead, and labor and material inflation costs.

Because Parkside Village represented a high proportion of the builder's total work, overhead allocations to the project were high. The builder estimated that labor and material inflation costs were reduced by about $200 per month per unit. However, since the 3-month reduction in processing time was assumed for a normal marketing situation, the extended delays in construction because of the depressed market made the processing time reduction applicable only to the first units sold. Total savings are shown below:

Reduction in Administrative and Processing Costs

	Cost Savings	
	Total	Per Unit*
Carrying charges and taxes	$ 1,872	$ 36
Overhead	24,960	480
Labor and material inflation	31,200	600
TOTALS	$58,032	$1,116

*52 units

SITE PLANNING AND DEVELOPMENT CHANGES

Presented in this section are land development cost comparisons of Parkside Village versus the same project if built according to existing standards and practices. As previously noted, Lincoln allowed an increase in density from 32 to 52 units, spreading land and development costs over 20 more units. Following is a summary of land development cost savings. Detailed analysis of each development phase follows within this section.

Land Development Summary

	Demonstration	Comparison	Total Savings	Savings Per Unit***
Raw land	$ 40,000	$ 40,000	$ -	$ 481
Earthwork	54,137	54,137	-	651
Utilities	114,103	114,103	-	1,371
Streets, parking	67,175	101,900	34,725	1,892
Sidewalks	4,708	8,997	4,289	191
Streetlights	2,500	7,500	5,000	186
Landscaping	3,408	3,408	-	41
Equipment rental	4,595	4,595	-	55
Supervision	5,546	5,546	-	67
Miscellaneous	1,546	1,546	-	19
TOTALS	$297,718	$341,732	$44,014	$4,954
Cost Per Unit	$ 5,725*	$ 10,679**	$ 4,954	

*52 Units
**32 Units
***Reflects both development changes and unit increase.

Streets and Parking

Lincoln allowed the builder to reduce the width of streets by 6 feet, to eliminate curbs and gutters and to increase street slope from 8 percent to 12 percent. Included in the following cost comparison is 530 lineal feet of Fairfield Street, a perimeter street designed to Lincoln's standards.

Streets and Parking

	Demonstration	Comparison	Savings
Paving	$67,175	$101,900	$34,725
Cost Per Unit	$ 1,292*	$ 3,184**	$ 1,892

*52 Units
**32 Units

Sidewalks

According to existing Lincoln standards, 4-feet wide sidewalks are required on both sides of residential streets. Under a CUP, 3-feet wide sidewalks need to be placed on one side only. Cost savings are shown below.

Sidewalk Cost Comparison

	Demonstration	Comparison	Savings
Sidewalks	$4,708	$8,997	$4,289
Cost Per Unit	$ 90*	$ 281**	$ 191

*52 Units
**32 Units

Streetlights

According to existing standards, five streetlight poles would have been required. For the demonstration, Witt was allowed to use five house mounted lights instead. Cost savings are shown below.

	Demonstration	Comparison	Savings
Streetlights	$2,500	$7,500	$5,000
Cost Per Unit	$ 48*	$ 234**	$ 186

*52 Units
**32 Units

BUILDING DESIGN AND CONSTRUCTION CHANGES

The Lincoln demonstration contained 12 duplexes, 8 threeplexes, and 1 fourplex for a total of 52 units. Each was a bi-level design with between 848 and 850 square feet of finished living space in the upper level and between 500 and 600 square feet of unfinished space in the lower level walkout basements. The lower level was insulated and roughed-in plumbing was provided for a second bathroom. Total potential living area ranged from 1,348 to 1,480 square feet.

Framing and Sheathing

The major savings in Parkside Village's direct construction resulted from framing and sheathing changes. Although already allowed by code, these changes were unique for the Lincoln market. They included:

- 24 inches o.c. spacing for exterior and interior walls
- two-stud corners with metal drywall back-up clips
- plywood siding applied directly to studs without separate sheathing
- 3/4-inch thick tongue-and-groove underlayment grade plywood floor sheathing instead of typical two layer systems

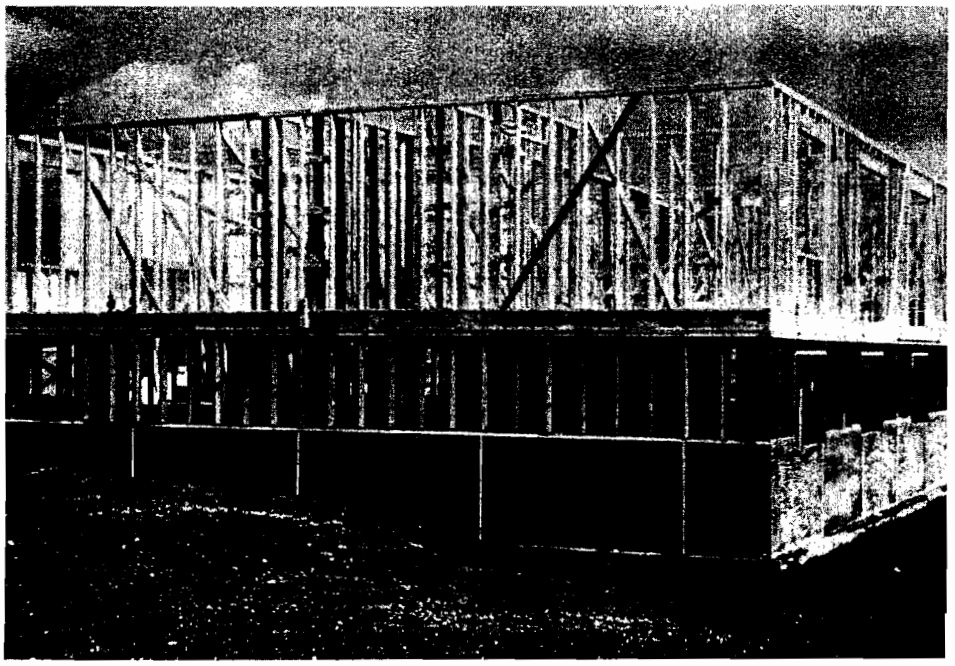
These techniques resulted in a cost savings of $490 per unit.

Unfinished Lower Level

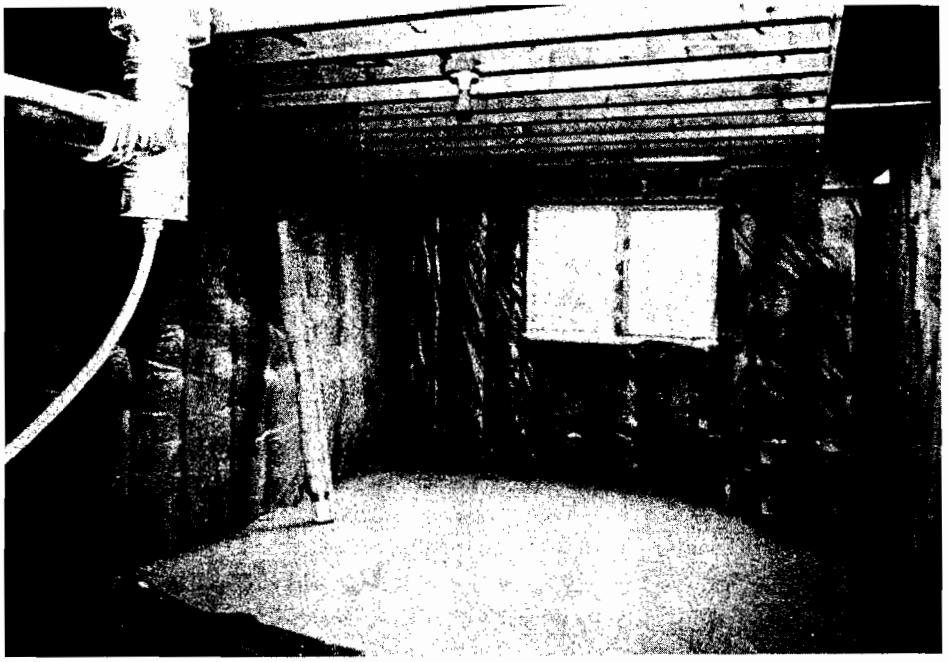
Although cost savings for unfinished space cannot be considered innovative in the truest sense, it should be noted that this is an excellent method for reducing first cost while providing space for future increased income and/or family growth. Had the builder finished the lower level, his costs would have increased an average of $3,072 and sales prices would have increased about $4,300, or approximately 10 percent.

All-Weather Wood Foundation

Empire Homes decided to test market the All-Weather Wood Foundation system in two units. Karl Witt was concerned that the system would be difficult to sell in the Lincoln area even though wood foundations are popular in neighboring states of Iowa and South Dakota. The American Wood Council, a Washington, D.C., based association, provided promotional assistance as well as engineering help, and the two units were the first to sell. Because Witt was reluctant to continue to use the wood foundation, no others were built. Costs for these foundations were probably higher than cost-in-place concrete because of lack of experience with the system. Therefore, cost comparisons were not made. It is likely that continued use of wood foundations would have resulted in lower costs.



All-weather wood foundation



Fully insulated foundation

INDIRECT COSTS

Because of cost reductions in all other areas, indirect costs such as overhead, financing, marketing, etc., were prorated and reduced by $485 per house.

COST SAVINGS SUMMARY

Following is a summary of cost savings in Parkside Village because of reduced governmental regulations and builder/developer changes to typical practices in the city of Lincoln.

Total Cost Savings

	Savings Per Unit
Administrative and processing	$1,116
Land and land development	4,954
Direct construction	490
Indirect construction	485
TOTAL	$7,045

Appendix I

Project Schedule

Approval Process Schedule

January 1982 - HUD designated Parkside Village as Affordable Housing Demonstration Project.

February 1, 1982 - February 16, 1982 - Several meetings held between Witt and the City staff

February 19, 1982 - Formal submission of preliminary plat

February 19, 1982 - Formal submission of CUP

February 22, 1982 - Meeting at City Hall attended by: Witt; Morony, HUD Project Manager; Bott, Architect/Site Planner; Carpenter, Mayor's Administrative Assistant; and the city technical staff; to discuss the goals of the Affordable Housing Demonstration

February 22, 1982 - Informal briefing (by Witt and Morony) for the City Council to enlist their support

March 17, 1982 - Public hearing before the Planning Commission

March 29, 1982 - Preliminary plat and CUP approved by the city

March 29, 1982 - Building permits issued for the three groups of models

April 22, 1982 - Wall Raising Ceremony/Press Conference attended by Karl Witt, Mayor Boosalis, and representatives from the American Wood Council and the HUD Area Office

June 9, 1982 - Formal submission of the final plat to the city

June 18, 1982 - Sale of the first house

August 2, 1982 - Final approval by the city

Appendix II

All-Weather Pressure Treated Foundations

Another innovation tried in one of the model duplexes was an all-weather wood foundation.

The lumber and plywood walls below ground were framed the same as typical wood construction but they were pressure treated with a chemical preservative to prevent decay and termites. Framing members were engineered to withstand house and earth loads.

Stud walls were erected by carpenters who had no previous experience with the system. Interior finish materials were easy to apply as they fasten directly to the studs. Masonry or concrete systems, on the other hand, required furring strips. The wood foundation stud cavities were fully insulated, providing a more comfortable basement area that conserves energy.

Several publications on this system are available. For additional information, write to American Wood Preservers Institute, 2600 Virginia Avenue, N.W., Washington, D.C. 20037 or National Forest Products Association, 1619 Massachusetts Avenue, N.W., Washington, D.C. 20036.

Appendix III

Acknowledgements

Ray Hill
City Planner
City of Lincoln

Ernest Remmers
Building Code Official
City of Lincoln

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The Affordable Housing Demonstration
Case Study 4

Sioux Falls, South Dakota

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Summary

The project site, Ascot Park, is a 14 acre parcel of gently sloping land located in the newly developing southeastern quadrant of Sioux Falls. The demonstration project, part of a larger tract owned by Ronning Enterprises, contains 75 single-family detached homes ranging in size from 812 to 1224 square feet selling for $55,000 to $70,000, and built at a density of 5.2 homes per acre.

At the time of the Affordable Housing Demonstration, Sioux Falls had already begun to examine its administrative review procedures and regulatory requirements. A new subdivision ordinance had been approved in November 1979. In 1980, a Construction Review Board was established by the city to examine the land development and building processes and regulations for further opportunities for improvement.

In this climate of cooperation with the city, Ronning Enterprises, builder/developer of the Affordable Housing Demonstration in Sioux Falls, obtained regulatory relief in several areas for the demonstration project. Just as important, however, is that Sioux Falls already allowed several efficient building and development techniques not permitted in most other parts of the country.

The two and three bedroom homes all have basements and two-car garages, and many have expandable space. The homes sold without a site sales office, models, or printed sales brochures. Most homes, in fact, were sold from blueprints!

Project cost savings came about through increased density, reduced rights-of-way, reduced street paving width, use of curvilinear sewers, increased manhole spacing, and use of efficient construction techniques.

This Affordable Housing Demonstration project was not selected for a detailed cost analysis. Therefore, information on cost savings is based upon generally accepted local cost figures and not on documented labor and material costs.

Project Description

The Community - Sioux Falls

Sioux Falls, Minnehaha County seat, is located in the southeastern corner of South Dakota near the borders of Minnesota, Iowa, and Nebraska. Most of the city is within a loop of the Big Sioux River. It is the largest metropolitan area in the state, with 109,432 people in the MSA and 81,343 in the corporate city, according to the 1980 Census. This is an increase of 12.2 percent in the city population over the 1970 Census report.

The number of employed Sioux Falls residents increased 35 percent from 1970 to 1980. According to the U. S. Labor Department, the city's unemployment rate was the lowest in the country for the months of July and August 1983, 3.9 percent and 3.2 percent respectively. Authorities attribute the city's healthy economy to diversification. Although Sioux Falls remains an agricultural trade center with farming the backbone, about 20,000 non-agricultural jobs have been created since 1970.

The 1980 Census reports that 60 percent of the 32,961 housing units in Sioux Falls were owner-occupied units; the other 40 percent were rental units, with a vacancy rate of about 7 percent. The 1980 median cost of housing was approximately $60,000. Median household income was $16,730. Between January 1 and September 30, 1983, permits were issued for 346 single family units.

The city operates under a Mayor/Commission form of government. The Mayor and two Commissioners are elected on a non-partisan ballot for five-year terms. The Mayor appoints a nine-member planning commission which reviews and must approve all development plans before they are presented to the City Council for final approval.

Builder - Ronning Enterprises

Ronning Enterprises, Inc., one of the largest and most successful firms in the area, was selected as builder/developer for the Affordable Housing Demonstration in Sioux Falls. Ronning has built over 2,500 homes in the area in the past 25 years, and is recognized as an efficient and innovative builder. Many of Ronning's developments include mixed commercial and residential structures. The firm has built many homes at the lower end of the market in the last several years.

Ronning has been successful by paying particular attention to costs and to quality. All site development and all construction other than framing is subcontracted to local firms who can provide this work at competitive prices. Ronning does the framing itself, utilizing panelized components -- roof trusses, floor trusses, and wall panels -- fabricated in its own plant. Ronning also sells components to other builders in the area.

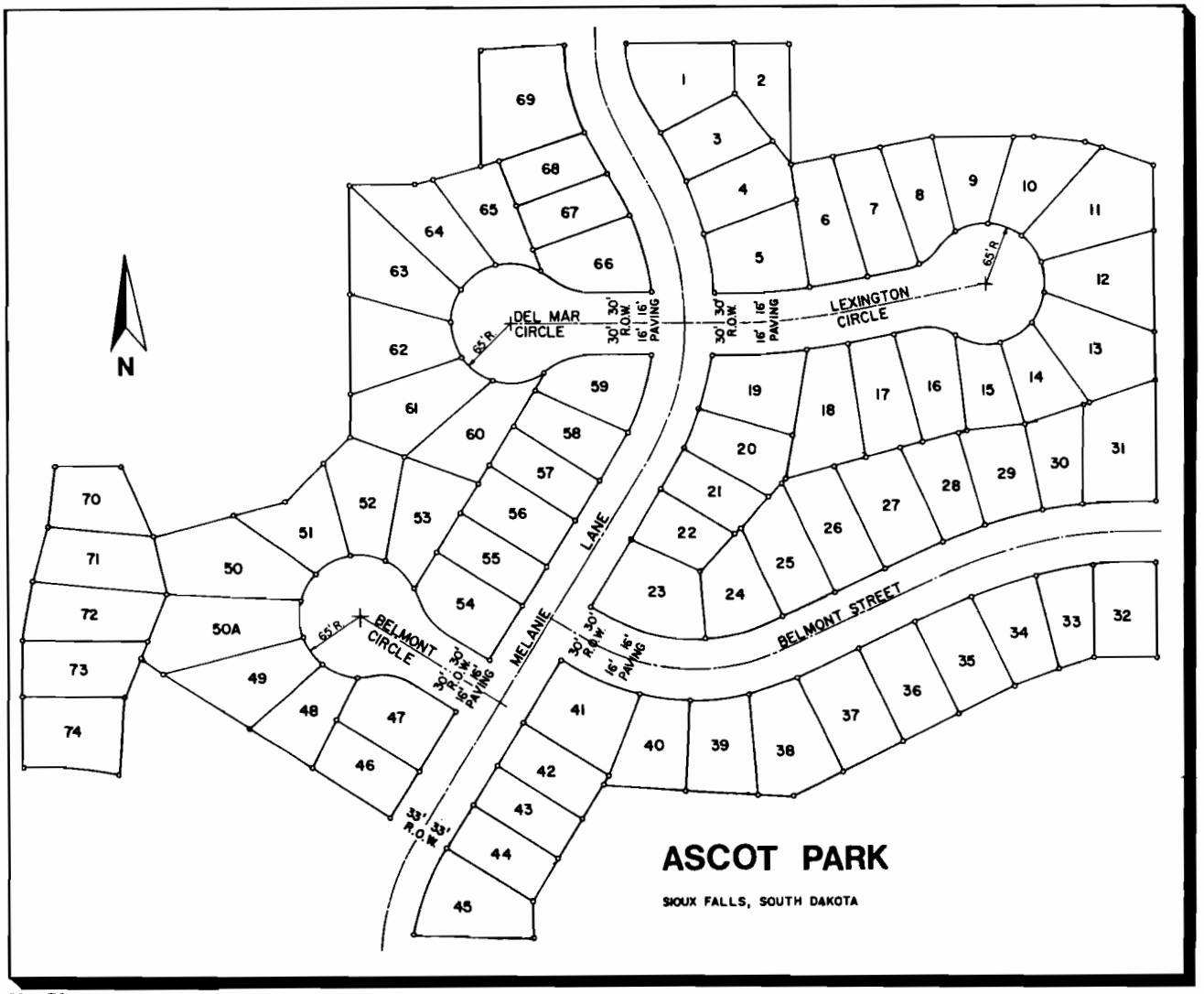
Development design is handled by an engineering firm which has a site planner on its staff, giving Ronning the benefit of good aesthetic design as well as practical engineering.

Project - Ascot Park

The demonstration project, named Ascot Park, is located in a newly developing area in the southeastern part of the city. The development is bordered by four through streets -- Sycamore Avenue, Judy Avenue, Oak Street, and 28th Street -- and is adjacent to a 30 acre school and park area. The demonstration portion of Ascot Park comprises 75 single-family detached homes built on approximately 14 acres of relatively flat land. The density is 5.2 homes per acre.

Ascot Park Sign

The homes sold for $55,000-$70,000. The Briarwood, the smallest home, has 2 bedrooms, kitchen, one bath, and living-room on the first floor, totaling 812 square feet of finished space. There are 420 square feet of unfinished space on the second floor. The Oakwood, a three bedroom home, has 1152 square feet of finished space and a 240 square foot unfinished "bonus room" over the garage.



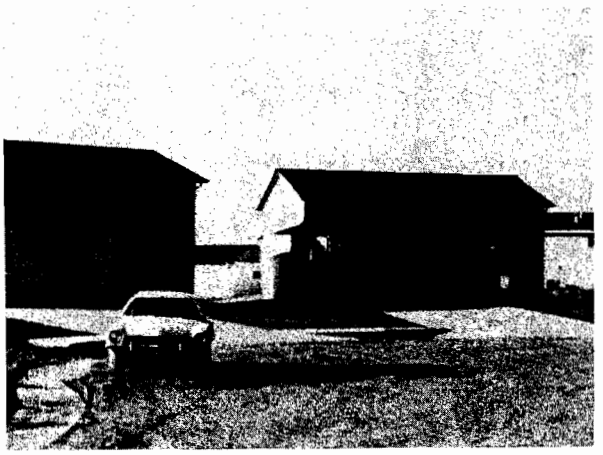
Site Plan

Ascot Park home showing octagonal window.

The octagonal window, used in each home, is a trademark of Ronning Enterprises. Several models have dormers.

Houses are set back from the street at varying distances to create an interesting street-scape. Street frontages range from 34' to 100'. Ronning specified the models for most lots according to house size, lot configuration, and neighboring houses to provide an attractive diversity of designs. House color and trim were selected by buyers from a range of samples.

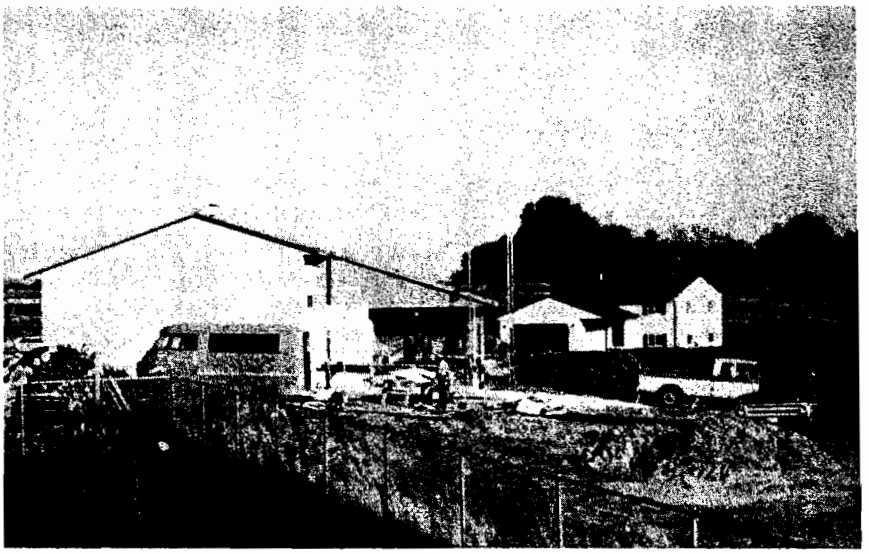
Larger Ascot Park home with dormers.



Ascot Park cul-de-sac.

All models have two-car garages and full basements. The garages are a positive marketing feature in the cold, snowy South Dakota climate. The basements also add to the value of the house at a small additional cost over the normal deep foundation walls required for frost protection in Sioux Falls.

The target market for Ascot Park homes was first-time home buyers. Several models were designed with unfinished spaces to keep the initial cost down and still permit the buyers to easily expand as family sizes and incomes grow.

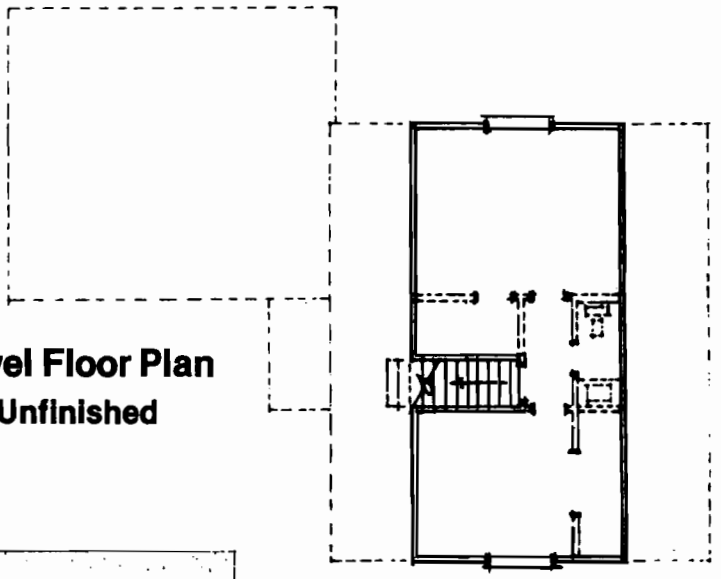


Ascot Park under construction.

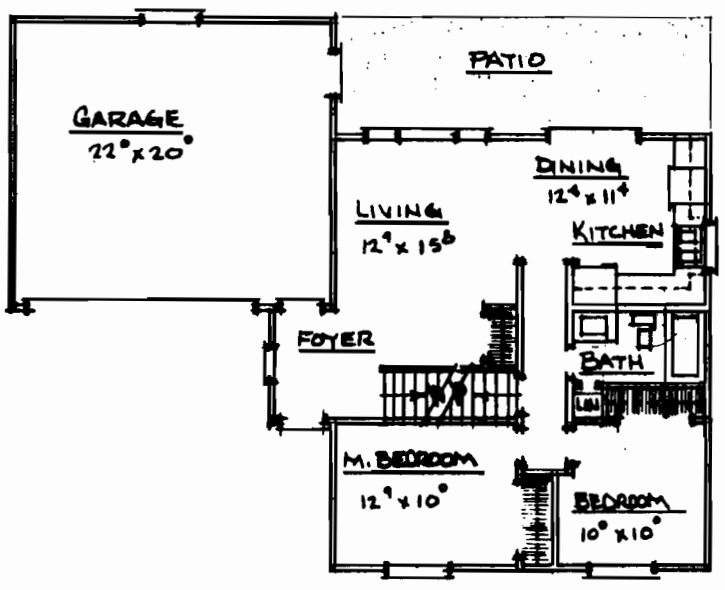
The entire planning, design, construction and marketing of the demonstration was accomplished in one year. Ronning joined the program in October 1982, final plats were approved from February through September 1983, ground was broken in March 1983, and all 75 homes in the demonstration phase of the development were sold out by October 1983.

On the following pages are a few of the most popular Ascot Park model floor plans.

The "BRIARWOOD"

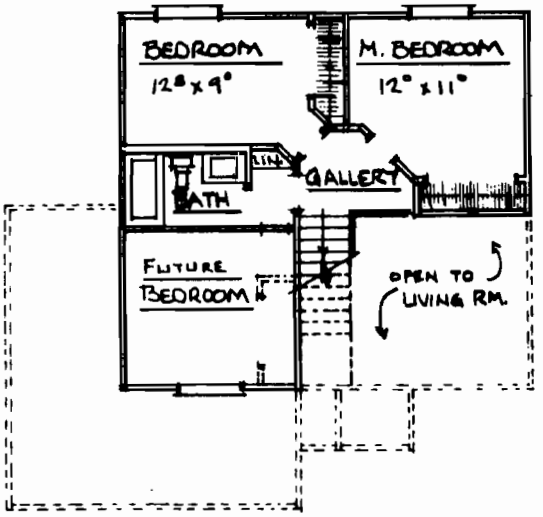


Upper Level Floor Plan
420 Sq. Ft. Unfinished



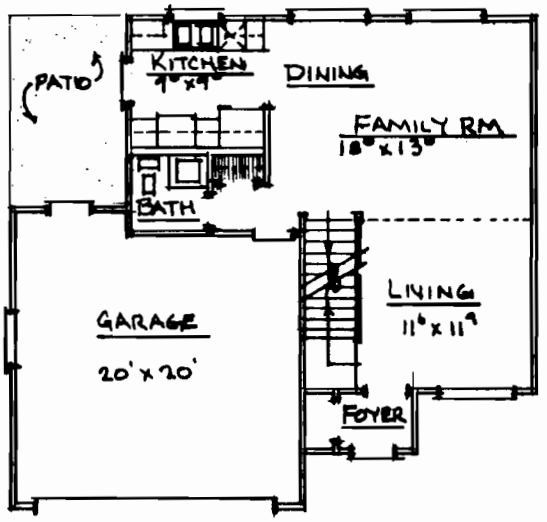
Main Level Floor Plan
812 Sq. Ft.

The "OAK RIDGE"



Upper Level Floor Plan

404 Sq. Ft.



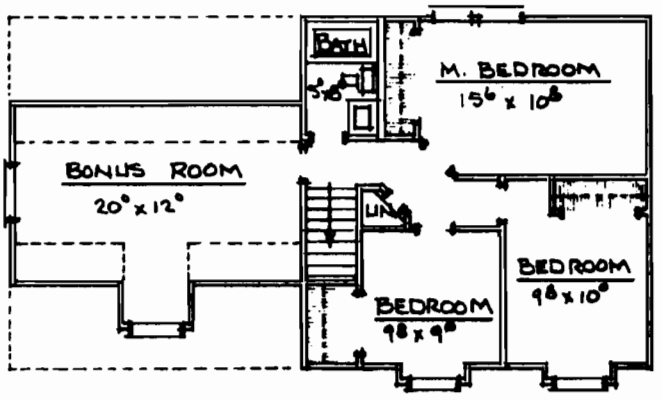
Main Level Floor Plan

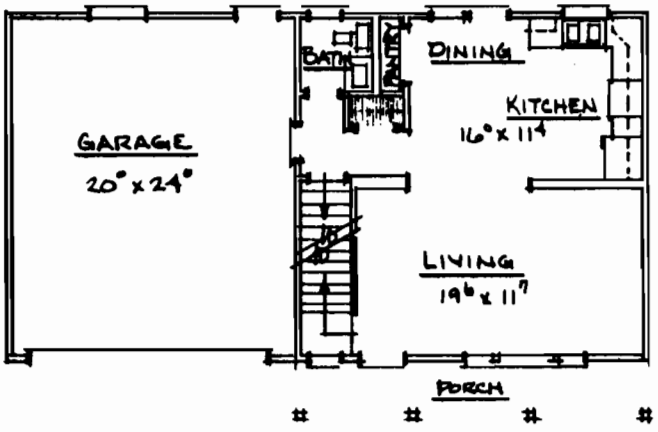
628 Sq. Ft.

The "OAKWOOD"

Upper Level Floor Plan

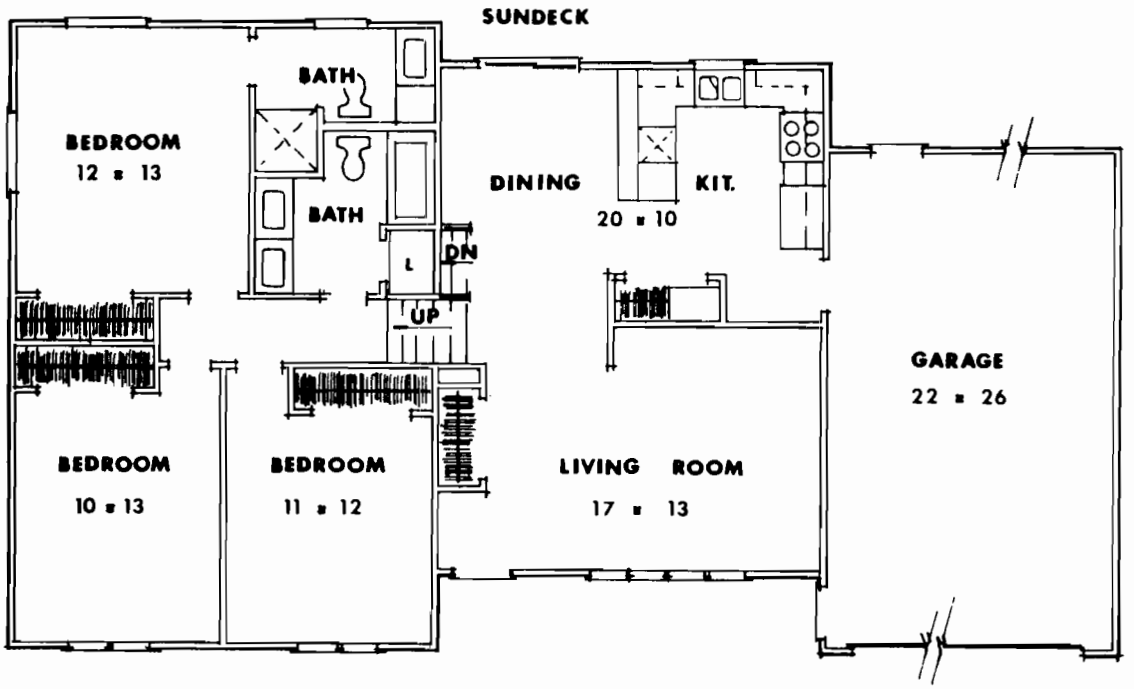
576 Sq. Ft.
240 Bonus Ft.





Main Level Floor Plan

576 Sq. Ft.



Floor Plan
42 x 32 Sq. Ft. 1224

Chapter 2

Project History

For the past few years, the City of Sioux Falls has been examining its administrative review procedures and requirements with the intent of reducing processing time and regulations which add unnecessary costs or time to develop land and construct housing. The Planning Commission solicited comments on existing subdivision ordinances from local developers and builders. Then the Mayor, City Commissioners, and city staff worked together on various aspects of the planning and development process.

In 1982, the Sioux Falls Home Builders Association (HBA) suggested their city as an appropriate participant in the Affordable Housing Demonstration program. When Ronning Enterprises learned that Sioux Falls was looking for builders with sites, they expressed a desire to participate and offered the Ascot Park site.

Mayor Rick Knobe and the City Commissioners were extremely supportive of Ronning Enterprises and the Affordable Housing project concept, and notified HUD by letter of the city's wish to participate. Ronning Enterprises was announced as the builder/developer for the Sioux Falls Demonstration on October 15, 1982.

Ronning Enterprises had received approval of the preliminary plan for the Ascot Park site in August 1980. The original plans for the entire site proposed a mix of attached and detached single family homes and low-rise apartments. The remainder of the development was to be medium density single family homes. Ronning normally builds 3.2 single-family detached units per acre. For the demonstration project, Ronning proposed 75 single-family detached homes on the 14 acre site increasing the density to 5.2 homes per acre.

The details of the demonstration project were first discussed in a mid-November working session attended by a City Commissioner, the City Engineer, the Planning Commission Chairman, the Director of the HUD Sioux Falls Office, the project builder/developer, and representatives of HUD headquarters and NAHB/RF. The group reviewed city regulations, normal Ronning building practices, and innovative development concepts and developed a list of possible new cost-saving ideas for developing and building the project. These included: increased density, roll curbs, narrower rights-of-way, narrower streets, increased manhole spacing, curvilinear sewers, common trenching, and eliminating sidewalks.

Then, Al Stone, formerly of Ronning Enterprises, and other Ronning staff worked with city personnel to negotiate specific changes to site development standards acceptable to the city.

The final site design was completed by Ronning after the negotiations and verbal approvals. Plat approval for the first group of homes was obtained in late February 1983. Ground breaking began in March.

Marketing

Ronning used an unusually low-key sales approach to marketing Ascot Park. Homes were sold at the central Ronning Enterprises sales office by showing the blueprints to potential clients considering purchasing Ronning homes in other developments. Sioux Falls was a seller's market at the time of the demonstration, in part because several firms were relocating their businesses and some personnel to the area.

The homes met the target market's needs -- affordable prices, expandable space, and desirable amenities such as basements and two-car garages. The low-key sales approach offered choice of home color and landscaping to the buyer. There was no need to construct the anticipated sales office and models or to print sales brochures. The 75 homes in the demonstration portion of the development sold in eight months.

Changes and Their Impact on Costs

Recent Changes in Sioux Falls

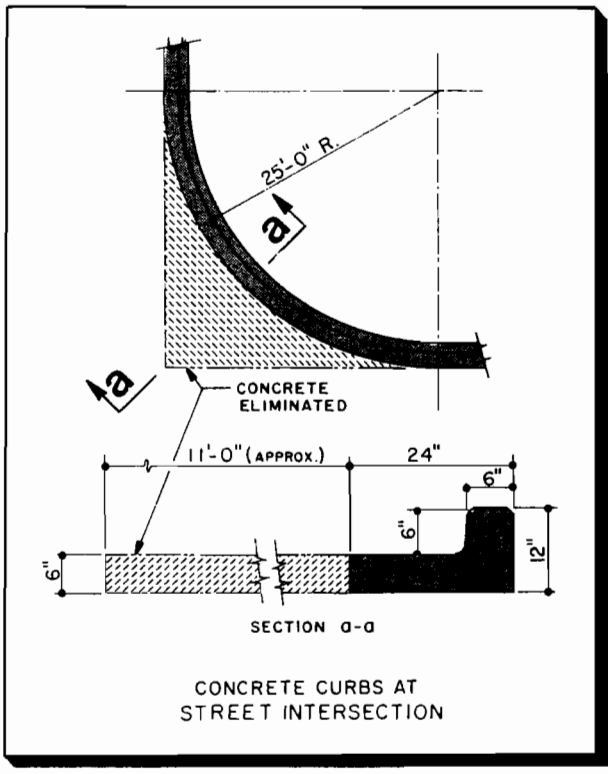
In November 1979 Sioux Falls adopted a new subdivision ordinance, the "1980 Revised Subdivision Ordinance for the City of Sioux Falls and Its Area of Extraterritorial Jurisdictions." The city continued to review regulations related to housing, and adopted an amended version of the zoning regulations on September 7, 1983.

These two revised documents simplify and accelerate several review and approval procedures. For example, the new subdivision ordinance does not require final plat approval by the Planning Commission if the preliminary plat is basically unchanged. Approval is required by the city engineer (city staff) and utility director (city staff). A previously designated Planning Commission member grants administrative approval and the plat is a consent agenda item for the City Commission. Previous regulations required review by the entire Planning Commission and City Commission.

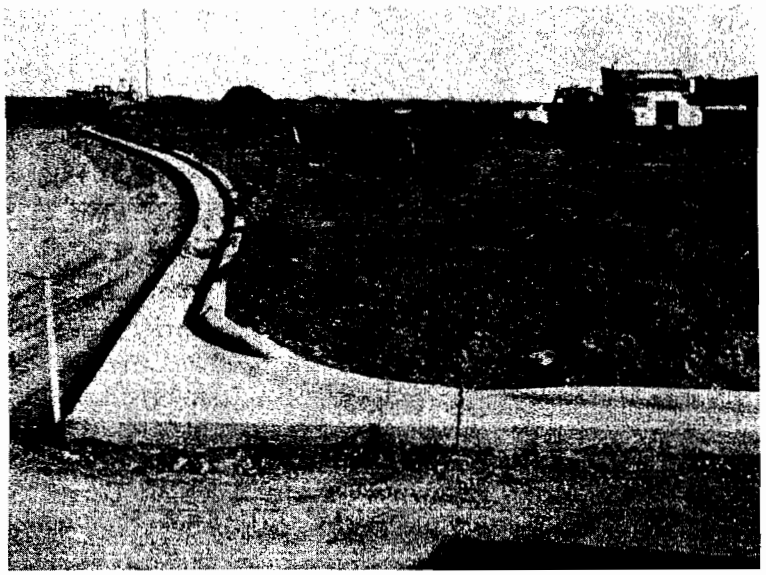
The new zoning regulations reduce by three weeks the review procedure for special permitting or conditional-use permitting (group homes, churches, schools, etc.). Another revision combines large scale residential development zoning with Planned Unit Development (PUD) to form a new Planned Development (PD) use category. Combined commercial, residential and multi-use site development under a PD designation requires only rezoning, and not special designation by the city required under PUD. Unlike the subdivision ordinance, however, final plats under the PD zoning designation must be specifically approved by the City Engineer, the Utility Director, the full Planning Commission, and finally, by the City Commission.

In early 1982, the city established the Construction Review Board to examine all aspects of construction in Sioux Falls, from regulatory processes to actual construction. Appointed by the Mayor, the Construction Review Board has representatives from the utility companies, builders, subcontractors, and city staff. The Construction Review Board is currently reviewing the 1982 version of the Uniform Building Code (UBC) and will recommend whether or not the city should adopt it as a new standard. The city is presently using the 1979 version of UBC.

In 1983, the Board established a small "cost cutting committee" to specifically review Affordable Housing issues. One recent action of the Board was the elimination of extra concrete paving required at intersections (see picture).



CONCRETE CURBS AT STREET INTERSECTION



Present concrete curb intersection standard.

The local Home Builder's Association (HBA) established a Regulatory Reform Task Force on July 13, 1983, to study many of these same issues and to continue the work begun by Ronning Enterprises in the demonstration. A part-time research person was hired to review specific issues. The Task Force is working cooperatively with the Construction Review Board.

Approval Process

Sioux Falls requires, under both PD and subdivision ordinances, the builder/developer to submit a sketch of the proposed development plan to the Planning Director and the City Engineer for discussion and comments regarding requirements for the general layout of streets, land set aside for schools and parks, street improvements, drainage, sewerage, fire protection, availability of services, etc. Based on discussion of this plan, the developer submits a preliminary plat for approval by the City Engineer, Utility Director, Planning Commission, and finally the City Commission. As noted above, final plat approvals under the two ordinances follow different processes.

Property taxes are levied on Sioux Falls residential lots at the time of final plat approval. For this reason, a builder/developer submits the final plat for only the group of homes he is ready to build. Ronning Enterprises followed this procedure for the Ascot Park subdivision plats. Sixteen lots were approved on February 22, 5 lots on March 28, 24 lots on July 18, and 30 lots on September 26.

The process from preliminary plan approval through final plat approval generally takes 2-1/2 to 3 months. Ronning Enterprises received faster than normal approval of the final Ascot Park plats because of the city's involvement in the project. The discussions of November 1982 through January 1983 prepared both city staff and the builder for formal acceptance of the plans.

One of the most efficient aspects of the Sioux Falls approval process is the flexibility allowed by some city ordinances. For example, the city engineer can use his discretion to determine width of rights-of-way, street

paving width, and manhole spacing. This enables him to approve plans on an individual basis of specific performance capabilities rather than general standards. City Engineer, Raymond N. Jorgensen, cooperated with Ronning Enterprises on the demonstration project to implement all potential cost savings. In one instance, he allowed roll curbs as a trial on the circle of one cul-de-sac. If the roll curbs perform satisfactorily, the city will consider allowing them on a wider basis.

List of Requested Changes

Requirement	Builder Request	Changes
66' right-of-way on residential streets	60' right-of-way on residential streets	Variance by city allowed 60' ROW
38' street paving on residential streets	32' street paving on residential streets	Variance by city allowed 32' paving
50' normal frontage	Average lot width of 50' resulting in some cul-de-sac lots with 34' frontage	Allowed
3.2 units/acre normal density	5.2 units/acre	Allowed under PD & city subdivision regs.
400' normal manhole spacing	450'-465' manhole spacing	City engineer allowed
Curvilinear sewers	----	Allowed by city code
6" vertical curbs	Roll curbs	City engineer allowed on one cul-de-sac

Details of Changes and Their Costs

Comparison Costs

Detailed cost analyses with specific documentation were not done for Ascot Park. Rather, generally accepted local cost figures were used to estimate savings due to changes in regulations and builder/developer practice.

Density

Raw land for Ascot Park cost approximately $11,000 per acre, a normal price in that area of Sioux Falls. Ronning Enterprises typically builds an average of 3.2 single-family detached houses per acre. For the demonstration, the firm changed their initial plans and obtained a density of 5.2 homes per acre. The higher density was allowed by the subdivision ordinance. This density was facilitated by a variance from the city to allow narrower rights-of-way and narrower streets, as well as a decision by the firm to use narrower frontages on cul-de-sacs. Typical Sioux Falls frontage is 50 feet. In the demonstration, the city allowed Ronning to average the lot width. Some of the pie-shaped lots on cul-de-sacs have only 34 foot frontages. Lot depth ranged from 92 feet to 150 feet.

Effect of Density on Raw Land Cost

Density Units/Acre	Land Cost/Acre	Raw Land Cost/Unit
3.2	$11,000	$3,437
5.2	11,000	2,115
SAVINGS PER UNIT		$1,322

Streets and Rights-of-Way

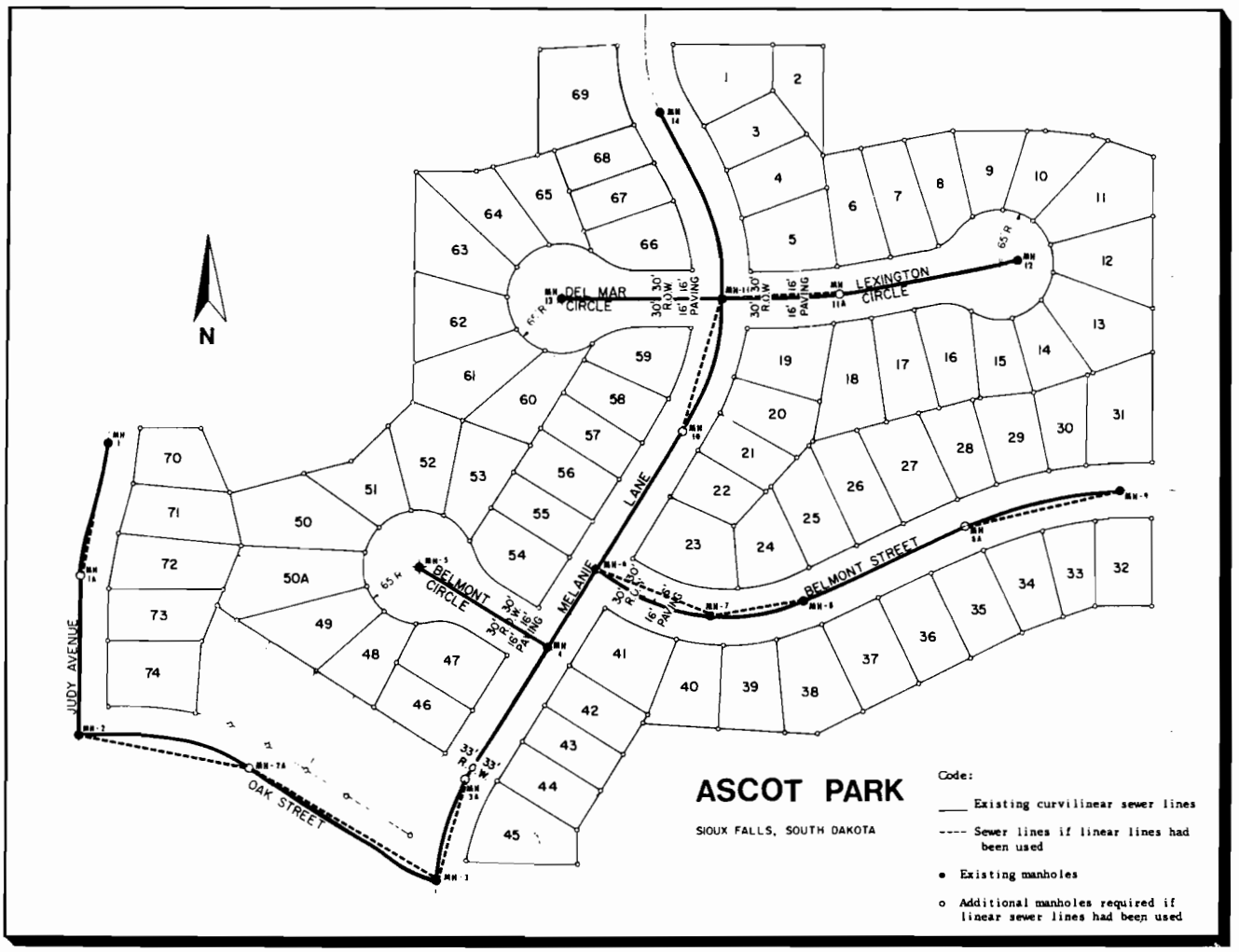
The city of Sioux Falls, like many western cities, requires unusually wide rights-of-way (ROW) and streets, and has held firmly to this requirement. However, for the demonstration project, the city allowed reduced widths as a test on cul-de-sacs and on local streets. ROW width was reduced from 66 feet to 60 feet and street paving reduced from 38 feet to 32 feet. These widths will be considered by the Construction Review Board and the Regulatory Reform Task Force as a base for future standards.

Street Cost Savings

Description	Conventional	Demonstration	Savings
Collector, no change	$27,170	$27,170	$ - 0 -
Residential, reduced from 38' to 32' wide	27,778	23,400	4,378
TOTALS	$54,948	$50,570	$4,378

COST SAVINGS PER UNIT* $58.37

*The total cost savings of $4,378 was realized on streets servicing only 30 of the 75 units. Had all street widths been reduced equally, total savings would have been $10,945 or $146 per unit.



Site plan showing manhole savings.

Sanitary Sewers and Manholes

The city granted Ronning Enterprises approval to space the manholes at about 450-465 foot intervals instead of the Sioux Falls norm of 400 feet. Subdivision regulations allow the city engineer to use discretion in spacing over 400 feet. The standard manhole spacing across the country is 250 to 300 feet. At a cost of $1,000 per manhole, this is a significant saving.

Ronning Enterprises used curvilinear sewers in Ascot Park, eliminating six manholes. Curvilinear sewers are permitted under Sioux Falls codes, but have not been accepted by most of the cities in the country. Using 300 foot spacing and not allowing curvilinear sewers on the site would have required six additional manholes. At $1,000 per manhole, this is a $6,000 savings, or $80.00 per unit.

Roll Curbs/Vertical Curbs

The city engineer maintained that roll curbs must be the same height as vertical curbs. Six-inch curbs have been the standard in Sioux Falls, and are necessary to meet major runoff requirements according to the city engineer. In response to a request by Ronning Enterprises, the city staff considered the use of shallow roll curbs, and the city engineer allowed them as a test on one cul-de-sac. Six-inch high roll curbs and vertical curbs cost the same in Sioux Falls. The curbs are installed before the type of house to be constructed on the lot is selected. Therefore it is usually necessary to remove the vertical curb and install curb cut. With a roll curb this was not necessary so a total savings of $450 per unit was realized.

Ascot Park roll curb.

Roll Curbs

Vertical Curb Costs

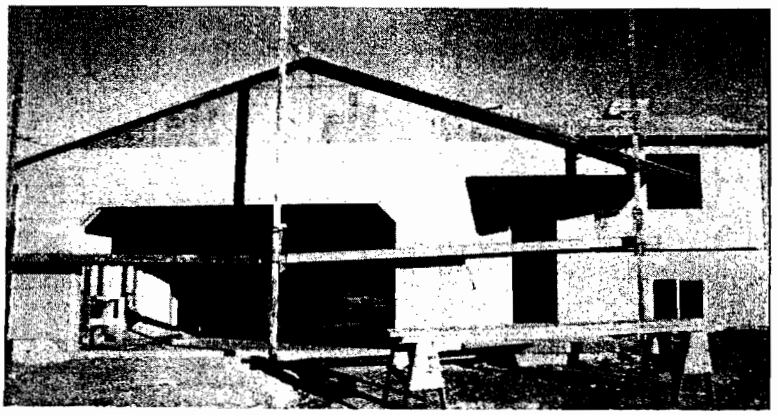
	Total Cost	Cost Per Unit
Break out vertical curb and haul away	$3,000	$40.00
Replace driveway apron on right-of-way and repair curb cuts	10,500	140.00
TOTAL COST SAVINGS*	$13,500	$180.00

*Roll curbs were used instead of vertical curb on streets servicing only 30 of the 75 units. Had they been allowed on all streets, total savings would have been $33,750 or $450 per unit.

Direct Building Construction: Panelization

Ronning Enterprises constructed housing components in a manufacturing plant adjoining the main office. Roof trusses, interior partitions, and wall panels for the Ascot Park project were cut and assembled undeterred by adverse weather conditions. Ronning Enterprises did not use the floor trusses made in their plant for the Ascot Park development since dimension floor joist lumber was less expensive at that time.

The open wall panels — studs and plates with exterior sheathing — were shipped on flat bed trucks to the Ascot Park site. The panels were in 12 foot sections, and could be handled by the crew without the use of cranes or other lifting devices. Because the panels were open, factory inspection was unnecessary. Wiring, plumbing and insulating were completed on site, with appropriate inspections.



Ascot Park home under construction.

Marketing

Ronning Enterprises elected to soft-sell the Ascot Park subdivision: no on-site sales office, no model homes, no formal advertising program. The national average spent for advertising, marketing and sales is 7 percent of the cost of the home. Al Stone estimated only 3-1/2 percent was spent to market Ascot Park. Thus, the 3-1/2 percent saved could be considered "cost avoidance".

Marketing Savings	
Average selling price of Ascot Park homes	$63,000
Per unit savings at 3-1/2%	$2,205
Total project savings at 3-1/2% on 75 homes	$165,375

Cost Savings Summary

The following chart estimates the cost saved by Ronning Enterprises in the Ascot Park Affordable Housing demonstration. No dollar amounts were assigned to panelization or marketing savings in the summary.

Total Savings

	Savings Per Unit
Increased density	$1,322.00
Reduced street widths*	58.37
Curvilinear sewer and reduced number of manholes	80.00
Roll curbs *	180.00
TOTAL	$1,640.37

*Applies to only 30 of the 75 units.

Had all street widths been reduced and had roll curbs been used on all streets, savings per unit would have been $1,998.00.

Appendix I

Participants

Harold F. Wingler, formerly Commissioner of Public Works

Richard Peterson, Commissioner of Parks and Utilities

Steve Metli, Director of Planning and Zoning

Jamie Haworth-Smith, Office of Planning and Zoning

Raymond N. Jorgensen, City Engineer

Orville Koehler, Director of Building Inspections

Kim Jacobs, formerly of Office of Planning and Zoning

D. Wayne Ronning,
Ronning Enterprises, Inc.

Al Stone, formerly Ronning Enterprises, Inc.

Edward Graham, Schmitz, Kalda & Associates Engineer & Land Surveyors

Cindy Van Hill, HBA of Sioux Falls

Delos Score, HUD, Sioux Falls Office

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