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# The Affordable Housing Demonstration

## A Case Study

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Mesa County, Colorado

Prepared for:  
U.S. Department of  
Housing and Urban Development



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January 1984

1. The first part of the document  
describes the general situation  
of the country and the  
state of the economy. It  
mentions the fact that the  
country is a developing one  
and that the economy is  
based on agriculture. It  
also mentions that the  
country is a member of the  
Organization of American  
States and the Inter-American  
Development Bank.

This report was produced by the NAHB Research Foundation, Inc., for the U.S. Department of Housing and Urban Development. The views and conclusions contained herein are those of the authors and should not be interpreted as necessarily representing the official view or policies of the United States Government.

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Mesa County, located in the western portion of Colorado, has a high cost of living compared to national statistics, with housing costs running approximately 10 percent above the national average. County officials, aware of the need for affordable stock, authorized a review of its development regulations and application process. This was initiated prior to the County's inclusion in the Affordable Housing Demonstration Program.

The project builder/developer is Roger Ladd and Company. The company's principals are Roger W. Ladd and Robert Gardner. Robert Gardner, a past member of the National Association of Home Builders Land Use Committee, heard about the national demonstration and wanted to participate. A long-time proponent of the need to reduce housing costs, Gardner realized participation would benefit the County by providing estimates of cost impacts of standards and processing procedures then under review.

The project, Coventry Club, is on 2.87 acres with a density of 17.4 units per acre. Each building is either a 6-plex or 4-plex townhouse. Prices range from \$39,000 to \$47,500, and ownership is fee simple.

Coventry Club was designed primarily for singles and joint ownership by two unrelated persons. At the time the project was conceived, the lowest priced units in the marketplace were priced in the upper \$40,000 to low \$50,000 range. A market analysis of prospective buyers in other recently completed subdivisions indicated that many singles, interested in moving from rental units, were priced out of the market. The builder believed that units in the \$40,000 - \$45,000 range would have a ready market. This decision is reflected in the type of unit offered:

an 896-square-foot one bedroom unit and a 1,088-square-foot unit with two master bedrooms. All units offer attractive features designed to appeal to the singles market. For example, in the one bedroom unit, the entire second floor is devoted to a king size bedroom with an opening to a great-room below. It has a huge closet and luxury bath with elevated tub, windowed ceramic platform for plants, and an optional jacuzzi. Serving this market also required special attention to creating an environment to meet social needs. Thus, the project includes a Community Center with a hot tub, exercise room, large screen TV, wet bar, and function room. This facility provides space for entertainment of groups larger than could be conveniently accommodated in an individual unit.

The main areas where the project costs were reduced are as follows:

Water and sewer fees	\$ 770
Indirect*	406
Curbs and gutters	111
Water service	63
Framing	237
Siding	931
Plumbing	145
<b>TOTAL SAVINGS/UNIT</b>	<b>\$2,663</b>

These figures do not include density savings as the project was already designed at 17.4 units per acre.

The units are attractive and sold quickly (80 percent of the units within the first six months). Coventry Club demonstrates that a forward-looking municipality working with a reliable, quality developer, can produce both a model project of which they are justifiably proud, and a regulatory environment that assures such development can continue in the future.

\*This includes marketing, financing, general and administrative expenses exclusive of density effects.



THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, D.C. 20410

In January 1982 I announced the formation of the Joint Venture for Affordable Housing, a public-private partnership established to combat the problem of high housing costs. The President's Commission on Housing and the HUD Task Force on Affordable Housing both found that this problem results largely from outdated and unnecessary building and land use regulations.

One of the most important elements of the Joint Venture program is the series of affordable housing demonstrations now under way in twenty States. These demonstrations are being carried out through the cooperative efforts of builders, developers, and local officials to show how regulatory reform can cut housing costs.

This case study reports on one of the first group of demonstration projects to have units ready for sale. Each project has its own story to tell. The individual case studies describe various ways that innovative site planning and development, and new methods and materials of construction, have cut the cost of the demonstration housing by as much as twenty percent. I urge you to read these studies and to use the ideas described in them to reduce the cost of housing in your communities. It can be done ... we've proved it!

Very sincerely yours,

A handwritten signature in cursive script that reads "Samuel R. Pierce, Jr.".

Samuel R. Pierce, Jr.

# 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 -- inflation in the cost 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. Recent studies by the President's Commission on Housing and by a special HUD Task Force on Housing Costs confirm the findings of earlier studies which show that ways exist to cut the cost of housing, if they are used. Too often, these studies show, out-of-date regulations and building practices 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. The Joint Venture, therefore, is a real partnership of the following organizations, all of whom have an interest in making housing more affordable:

American Planning Association  
Council of State Community  
Affairs Agencies  
International City Management  
Association  
National Association of Counties

National Conference of State  
Legislatures  
National Governors' Association  
Urban Land Institute  
National Association of Home  
Builders and the NAHB  
Research Foundation  
U. S. Department of Housing and  
Urban Development

Through conferences, workshops, demonstrations, publications, and similar activities, each of these organizations is helping to identify ways to cut construction costs through more effective and efficient planning, site development, and building procedures, and to provide this information to its members.

### 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 test 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 NAHB 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

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the responsibility of local officials to accept those which are reasonable for that community.

Participating builders and communities were 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, the National Association of Home Builders 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, unit densities were increased to reduce the impact of land cost on the final price, while good site planning and design made this increased density acceptable to the community. In other projects, street widths, street design standards, and utility system require-

ments were changed to reduce costs. Housing materials and construction methods were changed 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 during 1982 and 1983 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 homebuilders, 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 has been 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 the case studies.

The following material provides this information on the Affordable Housing Demonstration project in Mesa County, Colorado.



## Project Description

### The Community

Mesa County is located in western Colorado, just east of the Utah border. It is the most populous county of western Colorado with over 81,000 people, according to the 1980 Census. The county seat is Grand Junction, the principal city of the region. It lies in the Colorado River valley near the junction of the Colorado and Gunnison Rivers. Mesas and mountains lie to the north and east.

The county's major economic activities include agriculture, mining, manufacturing, transportation, trade, and tourism. The area boasts nearby skiing, camping, hunting, fishing, and water sports.

The coldest month is January, averaging 26 degrees. July, the hottest month, averages 78 degrees. Annual precipitation totals just over eight inches.

Mesa County cost of living data, according to the 1981 American Chamber of Commerce Research Association, based on a national cost of living index of 100 for all cities covered, includes the following:

Food	106.7
Housing	110.6
Utilities	67.7
Transportation	107.5
Health care	114.5
All items	102.3

Mesa County is governed by a three-member county commission, elected at large for concurrent two-year terms. Maxine Albers serves as Commission Chairman; the other two Commissioners are George White and Richard Pond. The County Administrator, Curt Weidemann, is appointed by the Commission and serves at their pleasure.



Curt Weidemann, County Administrator.

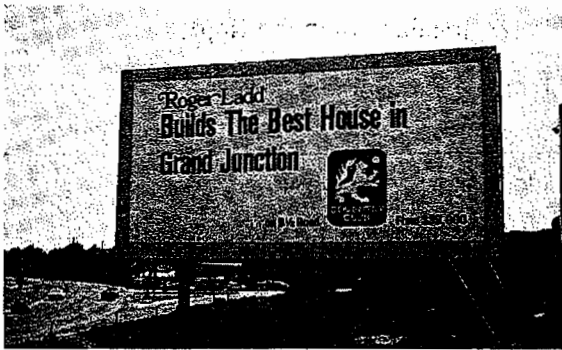
He is responsible for directing the day-to-day activity of the county staff.

The County has consistently provided prompt and efficient processing of applications for housing development, typically processing applications in eight to ten weeks. In the case of Coventry Club, the Affordable Housing Demonstration site in Mesa County, the processing was accelerated. The Commissioners took a direct and interested role in assisting the developers. The County Administrator and his planning department cooperated fully. This shortened the processing of the application to thirty days.

### The Developer/Builder

Roger Ladd and Company was the developer of the Affordable Housing Demonstration site, called Coventry Club. Roger W. Ladd and Roger R. Ladd (father and son) with Robert Gardner and Jerry Gardner (brothers) are the principals. They brought over 100 collective years of experience to the project, have built over 10,000 housing units, and have developed thousands of acres of land.

The firm has a reputation for innovative, cost-effective, quality construction. Of equal importance to their approach is the rigorous cost-control system which they employ. Roger R. Ladd personally calculates labor and material costs. The staff knows the cost of each component and process,



Promoting Coventry Club.

Roger Ladd and Company is nationally known, having been recognized for outstanding service by the National Association of Home Builders, the Urban Land Institute, and the American Society of Landscape Architects.

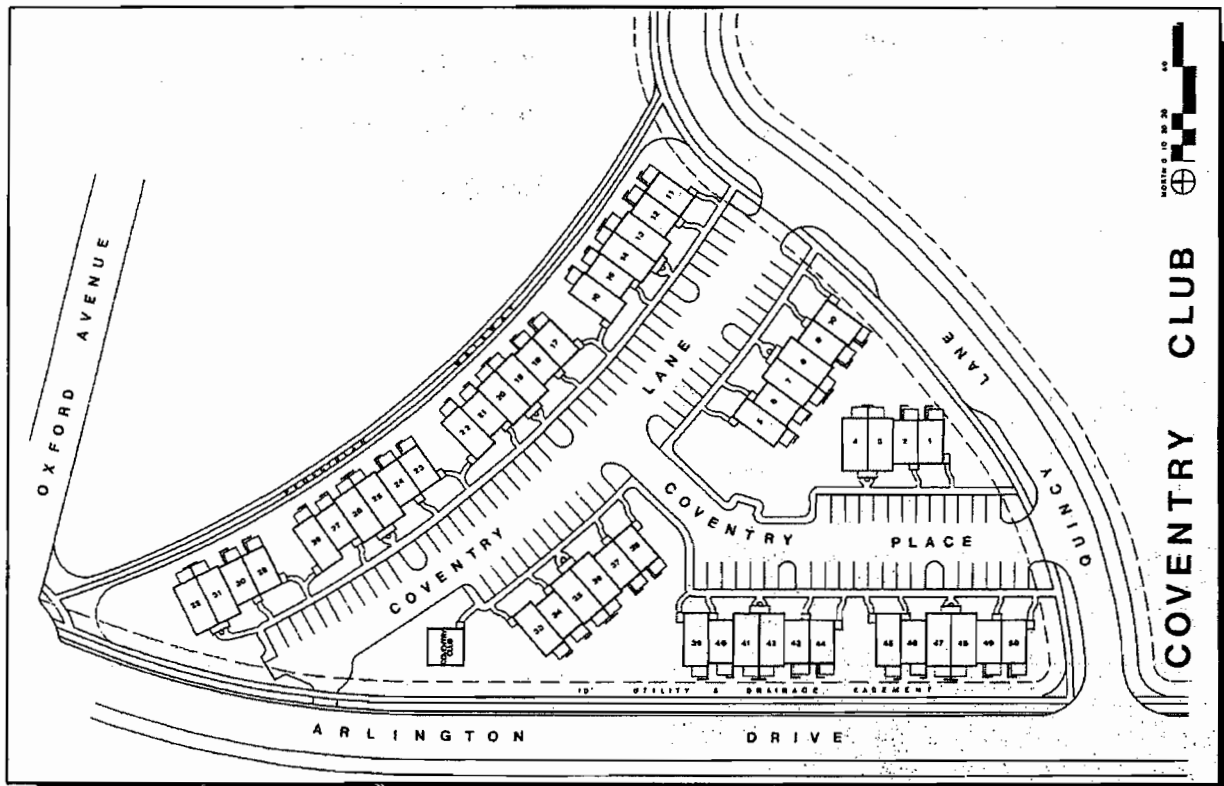
This exemplary track record, in combination with its close working relationship with the county government, set the stage for a successful Affordable Housing Demonstration Project in Mesa County.

and insists upon firm subcontract bids and no cost overruns. Everything is subcontracted except framing, sheathing, and siding, which are done by 14 carpenters on Ladd's staff.

A computer is used to track costs and as a marketing tool. Buyer demographics and sales records assist management in making strategic decisions as to what, where, and when to build, and for which segment of the population.

### The Project

"Coventry Club" was the name selected by Roger Ladd and Company for the Affordable Housing Demonstration site in Mesa County. Containing 2.87 acres, a 50-unit development was planned, yielding a density of 17.4 units per acre. The site plan shows an efficiently designed high density development on an irregularly shaped lot. The site was



Site Plan

bound by Arlington Drive and Quincy Lane and on the third side by single-family detached homes. Therefore, site planning options were limited. The units are sited so that they all front on interior streets, creating a sense of community. They are single-family attached townhouses in two models: one-half are one-bedroom, one-bath, 896-square-foot units; and the rest are two master bedroom, one-and one-half bath, 1,088-square-foot units.

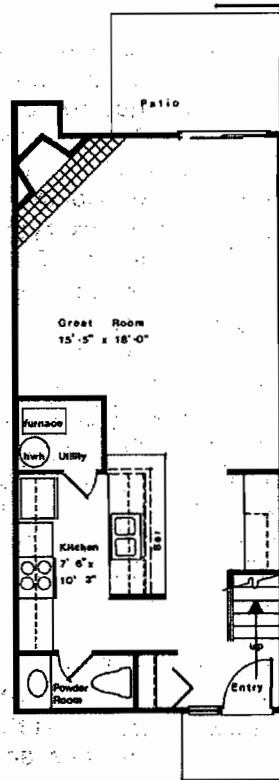
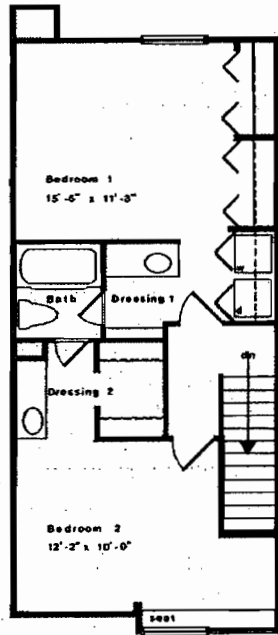
Units were designed for a specific market - singles and young professionals. Robert Gardner analyzed the sales records in previous developments in Mesa County and found that many singles who wanted to own their own homes were consistently priced out of the market.

Coventry Club was designed to meet this market by offering smaller, more affordable one-bedroom units, and by offering a model with two master bedrooms. This two-bedroom model is an attractive purchase for two unrelated persons, neither of whom could individually qualify for a mortgage loan. It also appeals to singles who can rent half the unit to help cover the mortgage and utility payments. This market strategy proved correct as 80 percent of the units sold within the first six months. All units have the following standard features:

- R-32 insulation in ceilings
- R-11 insulation in walls and crawl space
- Double glazed windows
- Insulated and weatherstripped exterior doors
- 25-year warranty on exterior siding
- Screens on all windows and patio doors
- Aluminum gutters and downspouts
- Landscaping (trees, shrubs, and sod throughout)
- European style kitchen cabinets
- Wall-to-wall carpets in living areas
- Evaporative cooling
- Glass fiber roofing
- Refrigerator

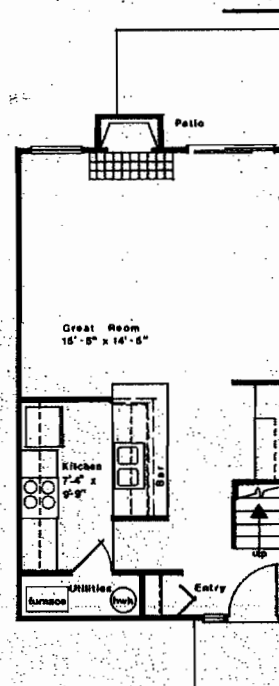
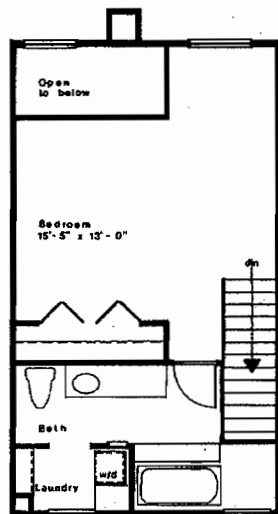


Interior of Two Bedroom Unit.



The Coventry

1088 sq



The Devonshire

898 sq

# Project History

The County Commissioners, the Planning Commission, and the administrative staff of Mesa County historically have been supportive of and helpful to orderly development of the County's lands. In the case of Coventry Club, their previous good working relationship with Roger Ladd and Company, as typified by the successful completion of previous subdivisions, The Commons and The Vineyard, expedited the processing of the subdivision application. The normal 8 - 10 week processing cycle took only 30 days for this project. This was due to the cooperation of the city staff and the thoroughness with which Roger Ladd and Company does their homework before submitting applications -- all necessary information is included, is accurate, and is reliable.

Roughly coincident with the start of this project was a 1982 decision by the County Commissioners to undertake a full-scale review of regulations and the application process. Eric Kelly, a nationally-known legal and planning consultant, was retained to prepare recommendations.

The first result of that study was the "Mesa County Land Use and Development Policies" document (Appendix I) which was adopted by the County Commissioners on September 7, 1982. The document stresses results-oriented planning, including support for the Planned Unit Development concept.

New regulations and processes are now being formulated using these policies as guidelines, and are expected to be formalized in early 1984. Upon completion, they will be processed through staff review, public hearings, Planning Commission recommendation, and County Commission action.

The most striking feature of the proposed regulations is their stress on results, rather than symptomatic treatment. For example, where the old



Coventry Club Fourplex.

regulations require certain street widths, setbacks, etc., the new regulations address requirements for traffic handling on various types of streets, aesthetic features to be incorporated, etc. A broader range of options is afforded planners, developers, and other decision-makers. Under the old system, an application would not be scheduled for commission action until after departmental reviews were complete. This sometimes resulted in delays. Now, however, as soon as a submitted application is complete, commission action is scheduled for 35 calendar days later; therefore, all staff work must be completed on a strict timetable.

The timing of Mesa County's regulatory review and the fact that a Ladd and Company principal, Robert Gardner, has long been a major proponent of affordable housing, make this project somewhat unique. Whereas other projects in the Affordable Housing Demonstration relied heavily on technical assistance, Coventry Club did not. Nonetheless, participation in the program has proven valuable to both the County and the builder/developer as it has given them reliable cost information.

10/10/10

Dear Mr. [Name],

I am writing to you regarding the [Subject]

As you are aware, the [Subject]

is a matter of great importance

and I am sure you will understand

the need for a prompt response

to this matter. I am sure you will

be able to provide the necessary

information and assistance.

I am sure you will be able to

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# Cost Impacts

## Building Design and Construction

The dwelling units were designed for labor and material efficiency. The simple rectangular plans minimized framing, sheathing, and siding costs, and room layouts minimized interior partitions. The ratio of interior partitions to exterior wall length was 0.37 to 1 in the one-bedroom unit and 0.59 to 1 in the two-bedroom unit. The national average ratio for attached dwelling units built in 1981 was 0.91 to 1 according to a survey conducted by the NAHB Research Foundation for Housing Industry Dynamics. Therefore, the demonstration units had about half the national average length of interior partitions.

Exterior dimensions were in modules of four feet, which provided for efficient use of sheathing, siding, and lumber. Since these materials are produced in increments of two or four feet, there was little waste. Roger Ladd and Company did a careful lumber and plywood take-off and instructed their on-site supervisors on the importance of proper material use and conservation. Because such attention to detail was normal practice for Ladd and Company, cost savings due to design, accurate material take-offs, and waste reduction cannot be determined on a before-and-after basis.



Cost Impacts

## Direct Building Construction

An evaluation of framing materials in the demonstration units found that Ladd and Company used substantially less lumber in both exterior and interior walls than the national average. In exterior walls, the average unit nationally contains 8.6 board feet of lumber per linear foot of wall. The demonstration units contained 7.2 board feet per linear foot, or 16.3 percent less. For interior partitions, the national average is 8.9 board feet per linear foot while only 6.7 board feet per linear foot were used in the demonstration units, a 25 percent reduction. These reductions were achieved by using two-stud corners with metal drywall back-up clips, eliminating partition posts and structural headers in non-load bearing walls, and framing partitions and common walls 24 inches on centers.

Single layer plywood siding and single layer plywood floor sheathing were used, eliminating wall sheathing and a separate underlayment. Three-eighths (3/8) inch plywood roof sheathing with plyclips was used instead of 1/2 inch plywood.

Polybutylene water supply pipe was used in the demonstration units instead of copper pipe, reducing costs by \$145.00 per unit.

The following table shows direct construction cost savings by category.

Direct Construction Cost Savings	
	<u>Cost Savings/Unit</u>
Framing	\$ 237
Siding and sheathing	931
Plumbing	<u>145</u>
Total savings	\$1,313

## County Fees

Water and sewer fees in Mesa County are higher than in most other areas of the country. Scarcity of water in this desert region and the extensive irrigation of farms and ranches by a series of canals running from the Colorado River have made water a valuable resource. The fees are set by county commissioners.

Typically, sewer tap fees are \$1,000 per unit, plant expansion fees are \$750 per unit, and water tap fees are \$2,800 per unit, totalling \$4,550 in sewer/water fees. Ladd and Company argued for reduced fees for the demonstration project on the basis that the small units would be purchased by singles and smaller than average families, reducing consumption of water and production of sewage compared to average Mesa County homes. This argument was successful in reducing a sewer expansion fee from \$750 to \$540 and the water tap fee from \$2,800 to \$2,240.

Sewer/Water Fee Reductions			
	Cost per Unit		
	Typical	Demo	Savings
Sewer tap fee	\$1,000	\$1,000	\$ 0
Sewer plant expansion fee	750	540	210
Water tap fee	2,800	2,240	560
Totals	\$4,550	\$3,780	\$ 770

## Site Planning and Development

The Coventry Club site was a triangular piece of land bounded on two sides by existing streets (Arlington Drive and Quincy Lane) and on the third by single family detached homes. Existing homes to the North, South and East were built by Ladd and Company. The parcel to the West of Coventry Club was vacant open land. The project had three entrances: two from Quincy Lane, a local street, and one from Arlington Drive, a collector street.

Because these two streets had been built with roll curbs, entrances into Coventry Club did not require cutting existing curbs and gutters. Streets within the project were constructed to existing Mesa County standards which had already been engineered to satisfactory minimums. The two interior streets, Coventry Place and Coventry Court, were primarily double-loaded parking areas without curbs or gutters. The raised sidewalk edge served as a curb in the parking areas. Roll curbs were used in the non-parking areas.

By using the raised edge of the sidewalk as a curb instead of roll curbs and gutters with separate bumper stops, a total cost reduction of \$5,566 was realized.

Polybutylene underground water service was used instead of asbestos cement pipe which was standard for Mesa County. This resulted in a cost reduction of \$3,152 for Coventry Club.

Land Development Savings		
	Total Savings	Savings Per Unit
Curbs and gutters	\$5,566	\$111
Water service	3,152	63
Totals	\$8,918	\$174

## Density

The 2.87 acre site was expensive at approximately \$52,000 per acre. But Mesa County allowed development at 17.4 units per acre which resulted in land cost of \$3,000 per unit. The density was acceptable under the site's current zoning, so it is not possible to place an actual value on savings due to increased density. However, the higher density did result in savings when compared to more typical subdivision densities.



Effect of Density on Raw Land Cost

<u>Density Units/Acre</u>	<u>Land Cost/Unit</u>	<u>Difference</u>
17.4	\$3,000	-
14.0	3,750	\$ 750
12.0	4,286	1,286
9.0	6,000	3,000

When the different density figures are used in calculating the total development costs, the compounding effect of increased density is clearly shown.

Costs for landscaping and an irrigation system were \$73,000 and were unaffected by density. Similarly, the \$25,000 community facility was appropriate for any number of units from 20 to 50.

For assessing the effect of density assume that the builder/developer had built 9 units per acre instead of 17.4 but included the same improvements; in this case, costs per unit would have been as follows:

Comparative Unit Costs  
17.4 Units/Acre (50 units) As Built versus  
9.0 Units/Acre (25 units) Built Conventionally

	<u>Costs Per Unit</u>		
	<u>Conventional</u>	<u>Demo</u>	<u>Savings</u>
Direct Construction			
Building	\$22,216	\$20,902	\$1,314
County fees	4,550	3,780	770
Land development	2,814	1,409	1,405
Undeveloped Land	6,000	3,000	3,000
Landscaping	2,806	1,459	1,347
Community Facility	<u>962</u>	<u>500</u>	<u>462</u>
Total Direct Cost	\$39,348	\$31,050	\$8,298

**Indirect Costs**

The builder typically applies percentages to all costs for marketing, financ-

ing, construction field expense, and general and administrative expenses. Normal percentages of total direct cost are as follows:

Marketing	- 6%
Financing	- 6%
General and administrative expense	- 6%

When applied to the demonstration project costs versus conventional project costs, substantial savings were realized as follows:

Indirect Savings			
	Cost per unit		
	Conventional	Demo	Savings
Marketing	\$2,382	\$1,885	\$ 497
Financing	2,382	1,885	497
G & A expense	<u>2,382</u>	<u>1,885</u>	<u>497</u>
Totals	\$7,146	\$5,655	\$1,491*

**Total Costs**

The average total cost for affordable housing demonstration units compare to conventional housing as follows:

Comparative Unit Costs 17.4 Units/Acre (50 units) As Built versus 9.0 Units/Acre (25 units) Built Conventionally			
	Cost per Unit		
	Conventional	Demo	Savings
Total Direct Costs	\$39,348	\$31,050	\$8,298
Indirect	<u>7,146</u>	<u>5,655</u>	<u>1,491</u>
Total Costs	\$46,494	\$36,705	\$9,789

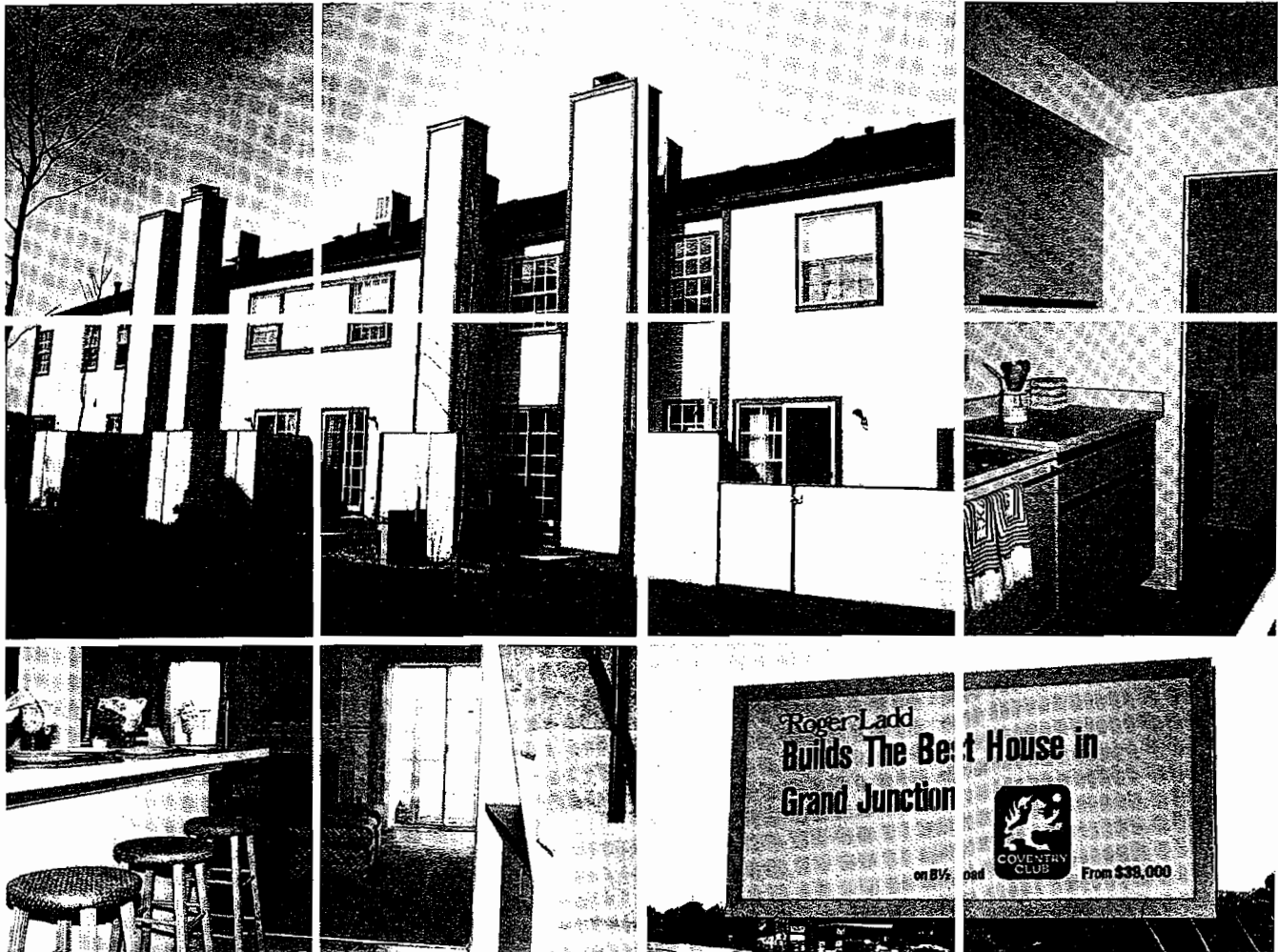
\*Indirect savings exclusive of density influence are \$406 per unit.



# The Affordable Housing Demonstration

## Mesa County, Colorado

## a Case Study



The Joint  
Venture for  
Affordable  
Housing



## Mesa County Land Use Policies

### 1. Introduction

The policies set forth in this document have been developed jointly by the Mesa County Planning Commission and the Board of County Commissioners of Mesa County. It is the intent of the bodies adopting these policies that they be adopted as the policy portion of the Comprehensive Plan and Master Plan for Mesa County. These policies will provide the basis for standards to be included in future zoning and subdivision regulations and other resolutions and regulations affecting land use and development in Mesa County. These policies may be modified and additional policies may be adopted as the County changes and as new information comes to the attention of the Board of County Commissioners and the Planning Commission. However, it is the intent of both the Board of County Commissioners and the Planning Commission that they will follow the policies in effect at any given time in making decisions at that time.

A policy is a specific course of action designed to implement a goal or objective. Previous policies include but are not limited to those contained in the "Goals, Objectives, Policies" document adopted by the Planning Commission in February of 1981. Policies previously adopted by Mesa County which are in any way in conflict with these policies are hereby rescinded. Land use policies previously adopted by Mesa County which are not in conflict with these policies but which are not expressly reaffirmed by these policies shall in the future have the status of staff or advisory committee recommendations; they

will be considered, along with other information and recommendations, by the Board of County Commissioners and the Planning Commission in making decisions, but those policies will not be binding upon either body.

The "Technical Notes" included with many of the policies in this document provide detailed guidelines for the implementation of the policies. In some cases, the details included in the "Technical Notes" simply provide definitions for terms used in the policy statement, while in other cases, those details may limit or define the policies themselves. Many other technical details of implementation of the policies will be developed by staff and consultants (subject to Board and Planning Commission approval) within the policy guidelines set out in this document. However, those technical details which have been included were in each case an integral part of the policy as developed by the Board and the Planning Commission and those details will be followed in the implementation of the policies.

### 2. Availability of Drinking Water in New Subdivisions and Other Developments

Mesa County has a statutory duty to determine whether a proposed development will have a supply of water which is dependable and adequate in both quality and quantity. In the areas served by the major municipal and quasi-municipal water suppliers, Mesa County will rely to the maximum extent possible on the recommendations of the appropriate service entity regarding the availability of an adequate water supply. In other areas of

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the County, the County will make its own determination of the availability of an adequate water supply, relying on objective data and specific recommendations from government agencies with expertise in the area of domestic water supplies. Mesa County, as a matter of policy, will make efforts to protect raw water supplies and watersheds of suppliers of domestic water. Also, Mesa County, as a matter of policy, will encourage conservation of water.

**TECHNICAL NOTE:** At the present time, the major municipal and quasi-municipal suppliers of domestic water in Mesa County are the Grand Junction, Ute, Clifton, Fruita, Palisade, DeBeque, and Collbran Water Systems. The County will rely to the maximum extent possible on the recommendations of each of those entities in the areas served or to be served by it. For projects not to be served by one of those entities, the County may at some time adopt its own minimum standards for water quality, minimum flows, reliability, and line sizes.

### 3. Minimum Fire Flows

The minimum fire flow is the minimum flow of water needed for firefighting. The minimum standards are determined by insurance rating organizations and other standard-setting groups. Required minimum fireflows are currently available in some urbanized areas in Mesa County but such minimum flows are not available in most rural areas and in some urban areas. The County does not provide fire protection or domestic water service. Mesa County has adopted building codes which, among other things, provide minimum standards to ensure that occupants of buildings are warned

of a fire and have the opportunity to escape. Most property owners carry insurance against property loss. Fire insurance costs in areas without minimum fire flows amount to only a few dollars more per month for an average house than costs for the same house in a fully protected area.

Under the described circumstances, Mesa County has determined that lower density residential developments should not be required to have minimum fire-flows prior to construction and occupancy. However, for reasons outlined in more detail in the discussion of Fire Response Time (below), the County believes that minimum fire flows or some alternative means of fire protection must be available prior to occupancy for multifamily residential projects, for all institutions and for most commercial and industrial developments. Further, Mesa County believes that provisions ought to be made to meet minimum fire-flow standards in the future in areas which are not now becoming urbanized. Thus, Mesa County will require that every new development in an urbanizing area install water lines of adequate size to meet minimum fire-flow standards and that every new development in an urbanizing area install fire hydrants at intervals recommended by the appropriate standard-setting organizations. Further, Mesa County will require that every new development within a reasonable distance of a distribution line which would provide minimum fire-flows be connected to such distribution line.

**TECHNICAL NOTE:** The determination of what is an "urbanizing area" involves a number of factors. However, in general a development would be considered to be in an "urbanizing area" if, after approval of the develop-

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ment, there would be a total of 500 dwelling units approved or built within a one mile radius of the center of the proposed development. The determination of what is a "reasonable distance" will vary depending on the scale and intensity of the development. However, 400 feet would be a "reasonable distance" or even the smallest development, while a distance of a mile or more might be considered "reasonable" for a larger development.

#### 4. **Fire Response Time**

Building code requirements for residences include bedroom escape windows, one hour walls and doors, smoke detectors, and other fire protection measures. These requirements are intended to ensure that occupants can safely escape a fire. Thus, the primary risk in an area with little or no fire protection is that of loss of property, a risk against which most persons carry insurance; fire insurance in an unprotected area does not cost a great many more dollars each year than similar insurance in a protected area. Because the safety of the occupants is addressed by the building codes, and because loss of property can be insured, single family residential developments should not be required to be located within a specified distance or response time of fire protection service.

In commercial, industrial, institutional, and higher density residential developments, the requirements for fire protection are more complex. A fire starting in one apartment or one office may threaten hundreds of thousands or millions of dollars worth of property and may threaten or affect the lives of persons having no real association with the building where

the fire started. Such developments must be located and/or designed in a way that provides for appropriate fire protection. Ideally, such developments should be located in existing fire districts and within a reasonable response time of existing or planned fire stations. Annexation to existing fire districts will be encouraged. However, in some cases special arrangements may be made for fire protection in a particular development. Mesa County will require in the future that all new industrial, institutional, commercial, and higher density residential developments have or make provision for reasonable fire protection.

**TECHNICAL NOTE:** For purposes of this policy, any development which has a gross density in excess of four dwelling units per acre; thus, falling in the two higher density residential categories, should be considered a higher density residential development. Standards for fire protection under this policy should be flexible enough to accommodate the needs and problems of a variety of developments but should also be consistent with standards established by reputable rating and standard-setting organizations. Such fire protection alternatives as sprinkler systems for remote warehouses and new fire districts for large-scale developments should be recognized as a form of fire protection under this policy, as should proximity to existing fire stations and hydrants.

#### 5. **Proximity of New Residential Development to Commercial Services**

Mesa County considered the adoption of a policy requiring that new residential development be located within a specified distance of exist-

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ing commercial services. Mesa County determines as a matter of policy that a regulation on this issue is unnecessary and that the objective of providing convenient services will be met by the private sector without public intervention.

6. **Standards for Sewer Service or Septic Systems**

Under the laws of Colorado, Mesa County cannot approve a subdivision unless the Board of Commissioners determines either that it will be connected to a public sewage disposal system or that it will have a private system or septic tanks conforming to state and local laws and regulations. Mesa County and the City of Grand Junction have together developed a high quality sewage collection and disposal system within the "201" service area in the Grand Valley. The designation of the 201 service area is the result of a facilities planning project undertaken with assistance from the Environmental Protection Agency several years ago. In order to make efficient use of this system, and to maintain water quality standards, all new development within this area will be required to be connected to this system within two years of construction or within ninety (90) days of the time when an interceptor or major service line exists or is built within 400 feet of any part of the development, whichever comes first. During any interim period between construction of buildings and connection of the development to the public sewer system, temporary alternative treatment and/or disposal systems will be allowed in accordance with standards established by the Mesa County Health Department.

The Colorado Department of Health has adopted a firm

"no-proliferation" policy to discourage multiple, small and scattered sewage treatment systems because of the difficulty of operating and managing small systems and because of the difficulty in regulating multiple systems. Mesa County supports and adopts that policy. Mesa County in the future will give the greatest possible weight to the recommendation of the Colorado Department of Health on the appropriateness as well as the design of a new proposed treatment system. In general, the County believes that the establishment of new treatment systems is both necessary and desirable to serve existing and proposed urban areas, but that the establishment of new treatment systems to facilitate scattered development on the fringe of existing urban areas and service areas is not desirable. However, Mesa County also recognizes that it does not control the delivery of sewage collection and disposal service and that some providers of such service may be unwilling or unable to expand to meet the growing needs of a growing County. When an existing service provider is unable or unwilling without reason to expand its service area, the County acknowledges that the establishment of a new treatment system near the old one may be necessary even if it represents a form of "proliferation". However, no development relying on such a treatment system should be approved unless the developer has first obtained at least concept approval of the location and design of the proposed system from the Colorado Department of Health.

Septic tanks located, installed, and operated in accordance with the regulations of the State of Colorado and of the Mesa County Health Department are suitable



means of sewage disposal for low-density residential development and for small-scale isolated commercial developments. Septic tanks may also be appropriate for the disposal of domestic-type wastes of small and isolated industrial plants. However, Mesa County as a matter of policy determines that septic tanks are not appropriate for higher density residential development, nor for large-scale commercial and industrial development, nor for any quantity of industrial wastes.

**TECHNICAL NOTE:** For purposes of this policy, lower density residential development is generally residential development at a gross density lower than 4 dwelling units per acre. However, where soil conditions are poor, an even lower density may be required for a project dependent upon septic systems. Small-scale commercial projects which would be approved for the use of septic tank under this policy would generally be isolated retail, wholesale, or storage facilities which would generate sewage primarily from restrooms serving only a few employees.

**7. Coordination of Long-Range School Planning and Development Patterns and Coordination of Development Approval and School Capacity**

The proximity of schools to new development is of concern to every person with children and to all public decision-makers. Mesa County and School Districts 49, 50, and 51, respectively, each make decisions that affect the other and that affect the patterns of land use and the proximity of residential areas to schools which the children from those residences will attend. The School Board of District 51 and Mesa County have jointly adopted a policy governing the

selection of school sites and have entertained seriously the possibility of sharing the cost of including school planning in the County's Comprehensive Planning Department. Mesa County should continue to work with School District 51 on such joint planning efforts and should begin to work with the other two districts on joint planning efforts. Ideally, the joint planning process with each school district should lead to the joint adoption by Mesa County and the board of each school district of a joint policy regarding school planning as it relates to land use and development issues within that district.

**8. Standards for Street Widths**

The determination of adequate street widths and rights-of-way is based on safety, traffic volume, and speed and potential need for expansion. However, streets are expensive to build and maintain and, therefore, should not be designed or built to be larger than necessary. While large rights-of-way are necessary for certain major corridors where future street widening is likely, in other areas large rights-of-way simply waste land.

Most arterial and collector roads in Mesa County will ultimately connect with and become part of a total street system which is integrated with the street system in the City of Grand Junction. In the past, Mesa County has had its own separate standards for such roads, standards which have resulted in peculiar designs where County-approved roads connect to City-approved roads. Mesa County will adopt and enforce City of Grand Junction standards for arterial and major collector roads.

Local streets are a totally different issue. With modern planning

techniques, well-designed local streets will never become collectors or arterials. Thus, the only concern in the design of local streets is that they be adequate to provide safe and efficient access to the development fronting on such streets. Surplus right-of-way is not necessary because future expansion is unlikely. For such streets, Mesa County believes that both old Mesa County standards and City of Grand Junction standards require streets that are unnecessarily wide. Mesa County has turned instead to recommendations of the Urban Land Institute, the American Society of Civil Engineers, and the National Association of Home Builders, and modified those standards slightly to meet local needs.

Rights-of-way for local streets should be tailored to site-specific needs. Under contemporary circulation planning practices, no local street should ever grow into a collector or arterial. Thus, the right-of-way does not need to include expansion room from the street. What it does need to include is enough room for the street, adjacent utility easements, drainageways, sidewalks, bikeways, and a

strip for snow removal. There may be some overlap among the utility easement, sidewalk, bikeway, and snow removal strip if they are carefully designed to make the multiple uses compatible.

The major arterial has four lanes, no parking. The minor arterial has four lanes, two bike-lanes, no parking. The major collector has two lanes and two rows of parking. The minor collector has two moving lanes and one row of parking or a turn slot. The local has two lanes plus one row of parking or can keep one lane moving even with parking on both sides. The cul-de-sac allows one lane of alternate traffic where there is parking, without parking, two lanes of traffic are accommodated. The short loop is the same as the cul-de-sac, very low speeds only are allowed.

In order to allow for snow removal, the minimum right-of-way for a local street of any classification should be six feet wider than the paved width. That standard should be expanded as needed for the other peripheral uses.

TECHNICAL NOTE: In order to implement this policy, Mesa County will revise its street standards based on the following criteria:

Major arterial	100' ROW	two 25' paved streets with divider
Minor arterial	77' ROW	one 56' paved width
Major collector	66' ROW	one 45' paved width to commercial standards
Minor collector	66' ROW	one 34' paved width to commercial standards
Local	-----	one 26' paved width
Cul-de-sac	-----	one 20' paved width
Short loop	-----	one 18' paved width

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For rural developments, all streets may be developed under the "local" classification (standards) unless very low densities suggest that future redevelopment may take place at higher densities which would require greater street capacity. If redevelopment is anticipated, sufficient right of way to expand to collector or minor arterial classification will be required.

Where a developer and the affected utilities agree to locate utilities away from the street, no right-of-way allowance should be made for utilities along the street. Where bikeways and pedestrian paths are located at the rear of lots or otherwise away from the street, no allowance for such uses needs to be made in the street right-of-way. However, the snow removal strip, described above, must be reserved in every street right-of-way.

In residential areas served by the local classification of streets, at least three off-street parking places should be provided for each dwelling unit, except that at least four off-street parking places should be provided for each single-family detached dwelling unit.

## 9. Land Use and Site Planning Standards

Mesa County believes that it is difficult at best for the County to establish detailed site standards that are suitable for every piece of land in Mesa County. County officials have learned from many public hearings that such matters as sideyard setbacks and fence restrictions are typically matters of neighborhood concern on which it is difficult to set appropriate County-wide policies. When such policies

are adopted, they are frequently in the form of rigid, prescriptive standards that discourage creativity and good site-planning.

Therefore, Mesa County is adopting a policy on site planning standards that is similar to the philosophy of the creators of the "planned unit development" concept. Under the new policy, site planning standards in Mesa County must require adequate street and drainage system design and otherwise protect public systems through performance standards. Further, the County must have and enforce requirements for buffer zones between incompatible land use types and provide prescriptive design standards for development of individual lots in established neighborhoods. However, for new developments involving larger land areas, the County will encourage developers to follow the original concept of the planned unit development by creating for each project site planning criteria which fit the site and the character of the development proposed. In such developments, the County will encourage developers to develop their own plan and site planning criteria, subject to gross density limits, performance standards and a requirement for a substantial buffer zone between substantially different types of development.

**TECHNICAL NOTE:** Residential developments in Mesa County should in the future be classified in three general density classifications: low density (0-4 dwelling units per acre); medium density (4-10 dwelling units per acre); and high density (greater than 10 dwelling units per acre).

The minimum buffer zone between different land use types should be 20 feet. The buffer zone should be planted and/or

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fenced and/or bermed. Buffer zones should be wider where there are significant compatibility problems between the two land uses, such as off-site odors, vibrations, glare, or noise caused by one of the land uses. Berms should be required whenever there is a potential noise problem. Landscaping, berming, and fencing in the buffer should be treated in the same way as subdivision improvement requirements -- that is, completion of the improvements should be bonded or otherwise secured and the improvements should be guaranteed for a reasonable period of time.

**10. Public Hearings Before the Planning Commission**

The role of the Planning Commission is complex. Viewed originally as a sort of technical review body, the Mesa County Planning Commission has assumed a growing role in all aspects of project review, including the holding of public hearings. The County has re-evaluated the role of the Planning Commission and considered the possibility of eliminating public hearings before that body and taking other steps to cut the workload of this traditionally dedicated group of volunteers. However, the result of the evaluation is the conclusion that the role of the Planning Commission ought not to be changed.

Thus, the Planning Commission will continue to hold public hearings on matters coming before it. Hearings will continue to be scheduled by the Planning Commission in a way that makes citizen participation as easy and convenient as possible.

**11. Policy on Cooperation with Municipal Governments**

It is the policy of Mesa County to cooperate fully with the government of municipalities within the County regarding land development regulation and all planning matters. Mesa County will continue to share a joint Comprehensive Planning Department with the City of Grand Junction in order to facilitate joint planning. One of the roles of that reorganized department in serving Mesa County will be to assist the other municipalities in the County in planning activities which relate to the growth of those municipalities.

It is further the policy of Mesa County to ensure that each municipal government in Mesa County will have an opportunity to review and comment on each development proposal in the unincorporated area which affects or may affect that municipality. In reviewing development proposals, Mesa County needs and values the advice of municipal governments. Mesa County will give careful consideration to the comments and recommendations of municipal governments on particular development proposals and will give particular weight to the comments of any municipal entity which would be providing services to a proposed development.

**12. Time Limits for Commencement of Development Following Approval**

In order to discourage land speculation, Mesa County will place time limits on all development approvals. Developers will be required to show substantial progress within those time limits.

**TECHNICAL NOTE:** Under the new Mesa County procedures, the first step in the approval process will be an Official Development Plan showing land uses and a general development plan. Approval of the plan will be void unless a Final Plat for the project, or in the case of phased developments, for the first phase, is approved within twelve months of the approval of the Official Development Plan. Development approval will be void unless major utilities shown on the Final Plat are completed within one year of approval of the Final Plat. On larger, phased developments, developers will not be required to adhere to the time limits outlined above, but they will be required to include a phasing schedule as part of the Official Development Plan and will be required to adhere to that schedule. A developer will be allowed to apply for one extension of not more than one year on single-phase projects or for one amendment to the phasing schedule on phased projects; such an extension will be granted only for good cause. The expiration of development approvals under this policy will be automatic.

**13. Policy on Utilization of Irrigation Water for Nonhousehold Uses by Developments in Areas Which Have Historically Utilized Irrigation Water**

Any development in areas which have historically had access to irrigation water should be encouraged to utilize such water for nondomestic purposes through pressurized or other reliable delivery systems. Historic irrigation easements will be enforced.

**14. Drainage Requirements for New Development**

New developments must not create run-off in excess of historic site

levels. Run-off will be held to existing predevelopment levels by minimizing impervious cover, and the use of swales, detention, and retention ponds. This "natural" approach to managing stormwater run-off is not only ecologically sound, but it is also less expensive than installing curb, gutter, and underground storm sewers for an entire development.

**15. Policies for Cost-Sharing by Developers and Landowners in Parks and Other Major Public Improvements**

Mesa County has for many years required that subdividers dedicate 5% of the land area of each subdivision for park purposes or pay a fee in lieu of such dedication. Mesa County has also required that developers participate in other ways in paying the cost of major public improvements. Mesa County will continue to require that developers help to pay the cost of major public improvements. However, the County will use a new formula to compute the contributions in order to make the requirements more fair and more consistent.

The old 5% dedication requirement for parks imposes too heavy a burden on the large-lot rural subdivision with one unit on every 2 or 3 acres, while at the same time, it assesses too little of the cost of parks to the apartment development with 8 or 10 units per acre. The Board and the Planning Commission believe that a dedication requirement based on the number of units is more fair both to developers and to the County.

The County should accept land dedication only if such land is necessary for implementing an adopted park, bikeway, open space, or school plan. In all other cases,

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the County should require payment of a fee in lieu of dedication.

Contributions for major capital improvements should also be based on the number of units or number of square feet of development. Such contributions should be placed in a County-wide fund for major capital improvements and used to pay for such improvements in accordance with the Capital Improvement Program of the County as it may be adopted from time-to-time.

A developer should be given credit against the park fee for the value of any park land dedicated to the County and for the cost of any capital improvements made to a park owned by or dedicated to the County or another public entity approved by the County. A developer should be given credit against the capital improvement fee for the cost of any off-site road and/or drainage improvements paid for by the developer.

**TECHNICAL NOTE:** The obligation of the developer to pay the park and capital improvement fee should be established at the time of the first land development approval granted by the County for a particular development. The obligation to pay the fee should be set forth in an agreement running with the land, but collection of the fee should be deferred to the date of issuance of a certificate of occupancy.

The initial fee should be \$225 per residential dwelling unit for residential developments or residential portions of developments. For commercial and industrial developments, the initial fee should be \$250 per 1000 square feet of building PLUS \$250 per 10,000 square feet of land, OR \$500 per 10,000

square feet of land for a project in which the total building area will be less than 500 square feet. The full fee should be charged for any portion of 1000 square feet or 10,000 square feet, respectively.

The residential fee should be divided into two parts, one part for parks and the other part for other capital improvements. Of the total fee, two-thirds should be allocated to parks and one-third to other capital improvements. The entire fee from commercial and industrial developments should be allocated to other capital improvements.

The amount and allocation of the fees should be adjusted at least annually.

#### **16. Policies Related to Mobile Homes and Modular Housing**

Mesa County has considered carefully two sets of conflicting policy considerations related to mobile homes and modular housing. On the one hand, a "trailer park" built many years ago may be a serious detraction from the quality of a residential neighborhood. On the other hand, quality manufactured housing may in the future be a cost-effective, energy-efficient way to house the majority of the American population which cannot afford traditional single family homes. It is the desire of the Board of County Commissioners and the Planning Commission to encourage innovation in housing technology while providing protection to residential neighborhoods from encroachments by insubstantial and unsightly trailers.

Mesa County will in the future allow modular and other manufactured housing which meets basic HUD standards and which meets

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Mesa County's "look-alike" standards to be treated like any other residential dwelling unit under Mesa County development and land use regulations. Modular and manufactured housing units which either do not meet the basic HUD standards or which do not meet Mesa County's "look-alike" standards will be allowed only on land specifically designated for "mobile homes" under present zoning or future land use and development regulations.

TECHNICAL NOTE: The "basic HUD standards" referred to above are those standards set forth by the Department of Housing and Urban Development of the United States government in Mobile Home Construction and Safety Standards.

Mesa County's "look-alike standards" will require that: the home be a rectangle or some

basic variation thereof with a minimum width of at least 20 feet as assembled on the site; the pitch of the roof be at least 1 foot of rise for each 4 feet of horizontal run; the long axis of the home should be substantially parallel to the street, unless the site plan for the particular development suggests or requires a different orientation; the exterior finish should appear to be wood or masonry and should not reflect any more light than would be reflected from wood siding coated with clean, white, gloss exterior enamel; the main roof should not be metal and should in most instances appear to be shingled; the foundation should form a complete enclosure under exterior walls. These look-alike standards are based on recommendations of the American Planning Association Planning Advisory Service.

