AN IMPACT ANALYSIS OF THE SALEM URBAN GROWTH BOUNDARY ON RURAL RESIDENTIAL DEVELOPMENT AND LAND VALUE

by

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AN IMPACT ANALYSIS OF THE SALEM URBAN GROWTH BOUNDARY ON RURAL RESIDENTIAL LAND VALUE AND DEVELOPMENT

ABSTRACT: An attempt is made to identify any significant impact of the Salem urban growth boundary implementation on rural residential development and land value outside of the boundary. Studies done in 1972 examine possible boundary impacts, but definite conclusions were not made because county rural development policy had not been finalized. This research analyzes subdivision trends and land value impacts in relation to boundary and rural development policy implementation. A multiple regression analysis of land value on independent variables is done in an attempt to isolate boundary and rural zoning impacts on the land value of parcels between one and fifteen acres (.405 and 6.07 hectares) outside of the boundary. Results of the multiple regression analysis show that zoning in accordance to rural development policy had more of a significant impact on land value than boundary implementation. Limitations of this research must be considered with the results. The possibility exists that impact associated with the urban growth boundary could have occurred prior to 1973 when the boundary was in its proposal stage.

INTRODUCTION

The Salem urban growth boundary was adopted by the Marion County Board of Commissioners on February 27, 1974. The growth boundary defines an area large enough to accommodate Salem's expected growth for the next twenty years. The urban growth boundary is viewed as one procedure for urban growth policy implementation.[1] The main purpose of the urban growth policy is to contain urban-type development in planned urban areas where public facilities and services can be efficiently and economically provided.[2] The implementation of the urban growth and rural development policies by the City of Salem and Marion County will influence residential land supply, demand, and development expectations in the unincorporated areas on both sides of the boundary. Land value and development impacts directly related to the implementation of the urban growth boundary are subject to considerable speculation.

Purpose

The purpose of this research is to attempt to identify any significant impact of urban growth boundary implementation on rural residential development and land values in a selected area outside of the boundary.

Study Area

The study area used for the land value analysis is located east of the Salem urban growth boundary in the proximity of the Santiam Highway (Fig. 1). This area has already undergone extensive rural residential development as the result of commuter advantage to Salem business and service areas.[3]

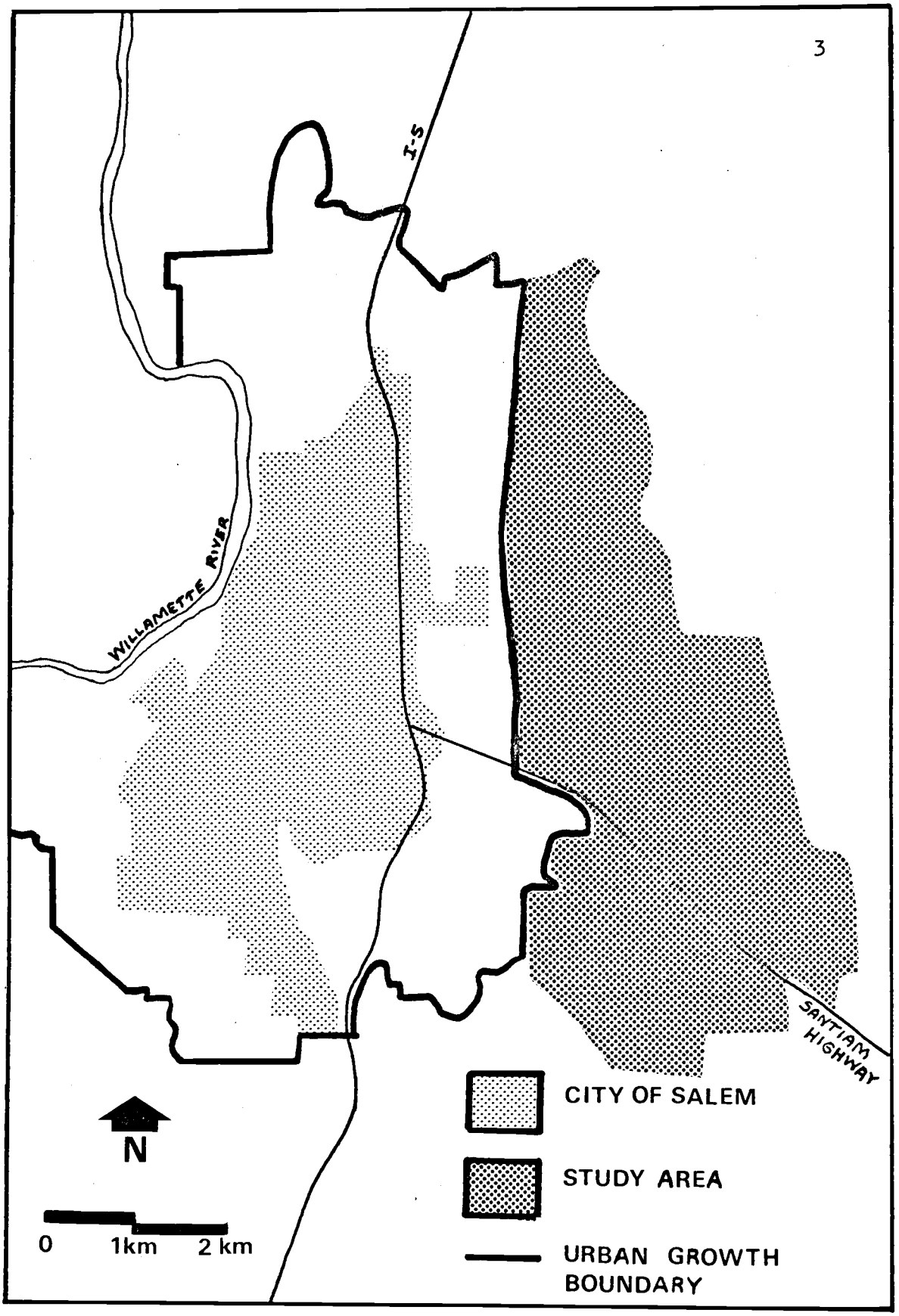

Fig. 1. Urban growth boundary and East Salem study area.

Procedure

Two 1972 studies dealing with urban growth policy of Salem are reviewed. The two studies suggest possible impacts of urban growth policy; however, at the time of the studies, rural development policy for Marion County had not been finalized. This research considers the impacts of rural development policy implementation such as zoning and subdivision controls along with the implementation of the urban growth boundary. Rural development trends are analyzed with respect to rural development policy and controls. An attempt to isolate impacts of policy implementation on rural land value is made through a multiple regression analysis.

Limitations of the Research

This research is only a limited attempt to understand the overall impact of the urban growth boundary on rural residential development and land values. Consideration is given to residential demand and supply trends in the unincorporated areas within the boundary along with trends outside of the boundary. Trends on both sides of the boundary are related in terms of residential land supply and demand characteristics, and their influence on land values. What happens on one side of the boundary could affect trends on the opposite side of the boundary. This consideration relates to growth policy and its implementation by city and county.

Many factors influence the value of each parcel of land. Independent variables used in the land value analysis were operationalized from sets of parameters which included site characteristics, governmental controls, and economic-demographic factors. Because of time limitations, detailed

information relating to these parameters could only be obtained from general sources; for example, site information was obtained from the Soil Survey of Marion County Area, Oregon. The problem of identifying all variables influencing land value suggests the difficulty of attempting to isolate the impact of one or two variables on land value. Land sale data are used in this analysis as the dependent variable. One problem with this approach is that unknown factors can influence buyer and seller creating a price not reflective of market conditions.

Two other limitations of the land value analysis include the amount of land sales that could be used for the study, and the years covered by the land sale data. The East Salem study area contains the greatest concentration of rural land sale activity; however, the total amount of observations used in the land value analysis was limited to twenty-three parcels. The parcels selected were bare land sales between one and fifteen acres (.405 and 6.07 hectares). Records of these sales, found at the Marion County Assessor's Office, are only recorded back to January, 1973. The availability of land sales before this date was restricted by time. Assessed values, although more readily available, were not used because of their inconsistencies with market value.

As a result of data availability, the land value analysis is restricted to trends between 1973 and 1976. Although the Salem Urban Growth Boundary was adopted by the Marion County Board of Commissioners on February 27, 1974, the initial impact of the boundary, if any, could have been in its proposal stage. The study by Beaton indicates possible impacts of the proposed urban growth boundary as early as 1972.[4]

DEVELOPMENT AND VALUE POTENTIAL OF LAND

The value of a tract of land and its potential for residential development depend on a large number of factors. Tract and area characteristics, economic-demographic factors, and institutional characteristics are interrelated in the causation of supply, demand, and speculative forces which create the development and value potential of a particular tract (Table I). The difficulty in a land value analysis, when using different tracts, is the isolation and measurement of enough variables to explain a significant portion of land value. The sale price of a tract may be influenced by intangible factors resulting from actions of buyer and seller not reflective of market conditions.

Physical and Area Characteristics

The price of a tract of land is partially influenced by the physical characteristics of that tract. Land conversion costs have an influence of the use of the tract and what the developer will pay for it. Slope and soil characteristics are factors influencing conversion costs. The dollar per acre price paid for a tract generally has a negative relationship to tract size. Area characteristics can add or detract from the value of a tract of land. Amenities found in rural locations for residential development influence what the buyer is willing to pay. A common view is land values are primarily a function of accessibility to and from the city center. This accessibility is determined partly by distance to the city center, proximity to arterial roads, and access to places of work, shopping, and recreation.

TABLE 1. FACTORS AFFECTING DEVELOPMENT AND VALUE POTENTIALS.

A. TRACT CHARACTERISTICS

1. Soil Characteristics
2. Vegetation
3. Slope
4. Topography
5. Flooding potential
6. Existing buildings or uses
7. Tract size
8. Natural drainage
9. Grading or grading required
10. Land conversion costs

B. AREA CHARACTERISTICS

1. Amenities
2. Social class
3. Reputation-image
4. Civic and informal organizations
5. Quality of schools
6. Development generators (employment) and detractors

C. ACCESS

1. Distance to city center
2. Proximity of arterial roads
3. Public transit availability and cost
4. Road congestion, capacity, speed
5. Automobile ownership and use
6. Access to work places
7. Access to shopping
8. Access to recreation
9. Access to public facilities

D. INSTITUTIONAL CHARACTERISTICS

1. Property tax
2. Special assessment provisions
3. Public sewer system
4. Public water system
5. Drainage system
6. Fire protection
7. Police protection
8. Quality of government
9. Present zoning
10. Enforcement of zoning
11. Building codes
12. Subdivision standards
13. Annexation policies
14. Local governmental urban growth policies
15. Federal housing programs, availability and use
16. Local public housing programs

E. HISTORICAL CONSIDERATIONS

1. Land ownership
2. Land fragmentation
3. Availability of land
4. State of technology

F. ECONOMIC-DEMOGRAPHIC FACTORS AFFECTING MAGNITUDE, LOCATION AND NATURE OF URBAN DEVELOPMENT

1. Regional economy - jobs
2. Population size and change
3. Family size - proportion unrelated individuals
4. Population age structure
5. Personal income levels
6. Trends in housing types
7. Capital availability
8. Interest rates
9. Federal-State tax policies

TABLE I. FACTORS AFFECTING DEVELOPMENT AND VALUE POTENTIALS. (Continued)

G. OTHER

1. Information: availability to landowner and developer
2. Present income from land in nonurban uses
3. Potential income from land in nonurban uses
4. Present and potential satisfaction to landowner from present nonurban uses
5. Areawide supply of land available for urban uses

Source: Developmental Effects of an Urban Growth Boundary on the Salem, Oregon Area - Urban Growth Policies Report No. 5, by D. N. Johnson, Associate Director, (Eugene: Bureau of Governmental Research and Service, July 1972), p. 35.

Economic-Demographic Factors

Economic-demographic factors affecting land value and development potential include population growth of the area, personal income levels, trends in housing types, and capital availability. Increasing employment opportunities and higher family incomes create a demand for larger residential sites and more of the associated amenities. A trade-off is usually made with accessibility to obtain these amenities. Other factors influencing the value and development potential of a particular tract are present and potential income from land in present uses such as timber or agriculture, and the areawide supply of land available for residential use.

Governmental Controls

Policies and controls available to government can affect land values; but taken individually, they may not be very potent relative to other factors.[5] Zoning has traditionally been the major governmental land use control. Zoning has generally been seen by property owners as a means of protecting the maximum value of a parcel for a designated use. This control modifies free-market conditions in cases where the highest bid for a particular parcel is disallowed by the zoning ordinance or where there is a demand for a specific lot size which is smaller than the minimum lot size designated by the zoning ordinance. Modification of the free-market situation is in question when zoning coincides with market demand.

Property taxation which significantly affects annual costs of holding property will affect land values. A tax increase would tend to lower land values; a tax reduction would tend to raise land values.[6] Oregon law defines several forms of property taxation such as farm use tax, tax

differentials, and open space tax which can be used as a part of urban growth policy implementation. These forms of taxation reduce holding costs of land supporting less intensive uses.

The provision of public facilities and services to a tract of land has a major impact on its potential for urban use; therefore, its value. The expectation of future location of public facilities and services can influence land value in the form of speculation. It is generally accepted that the location of public facilities and services rather than the non-location of them will affect land values.[7] This public investment initiates the conversion to greater intensities of land use resulting in higher land values.

Subdivision controls have an affect on land costs and land availability. Development policies introducing stricter controls relating to public and environmental concerns increase land costs. Stricter standards raise the value of the development in order to offset the cost of development. If residential demand is large and strict subdivision policies limit the supply for that demand, inflated values on land suitable for residential use could result. The establishment of the urban growth boundary along with a strict rural development policy could have this impact. A minimal impact is more probable if the amount of land suitable for residential development within the boundary is large in relation to the type of residential demand.

SALEM URBAN GROWTH POLICY

Urban growth policy is one of the foundations on which the Salem area comprehensive plan is based. Coordination between city and county is essential for policy implementation. The Intergovernmental Urban

Growth Policy Agreement was adopted by the Salem City Council on July 23, 1973, and by the Marion County Board of Commissioners on August 2, 1973. The agreement lists six urban growth policies which are to serve as the basis for decisions pertaining to development in a manner consistent with Oregon State law and the adopted comprehensive plans:[8]

1) Future development shall be contained within geographical limits of an urban growth boundary;
2) an urban growth boundary shall be established, and the necessary action shall be taken to have the boundary and related policies made a part of the comprehensive plans of city and county;
3) the area outside the urban growth boundary shall be maintained with low-density living areas, open space lands and other uses compatible with the intent of the urban growth policies;
4) all parties shall work toward the development of the most efficient and economical method for providing specific urban services to the area within the urban growth boundary;
5) all parties should encourage the orderly expansion to the City of Salem of land within the urban growth boundary; and
6) all parties shall work toward improved delivery systems of services that require coordination by larger units of government.

The basic purpose of the urban growth policy is to contain urban development where public services such as sewers, water facilities, and police and fire protection can be efficiently and economically provided. This containment is designed to prevent the inefficient use of land. Urban sprawl has occurred because of speculative forces making less expensive land further out from the city preferable for development. Farmland is lost when urban developers outbid farmers for the use of land. Scattered development results in high costs for the provision of public services, agricultural lands taken out of production, and the destruction of environmental amenities.

The Salem Urban Growth Boundary was adopted by the Marion County Board of Commissioners on February 27, 1974, and by the Salem City Council on March 11, 1974. The boundary was adopted separately from the Salem Comprehensive Plan because it was seen as one procedure for urban growth policy implementation.[9] Governmental decisions regarding zoning, subdivision controls, the use of annexation and property tax policy, and the provision of public facilities and services are to be made with the boundary in mind. This line, established by joint agreement between city and county, is intended to separate urbanizable land from rural land. The boundary defines an area large enough to accommodate Salem's expected growth for at least twenty years. The Marion County Sewer and Water Plan of 1969 anticipated a larger amount of rural land being committed to urbanization than that area defined by the boundary. The majority of the area included in the Sewer and Water Plan and not within the boundary is the area east of the boundary in the proximity of the Santiam Highway.

Rural Development Policy Outside of the Boundary

Rural development policy outside of the Salem Urban Growth Boundary is found in Marion County's Comprehensive Plan which was adopted in April, 1973, by the Marion County Board of Commissioners. The area adjacent to the growth boundary on the county side, and the areas parallel to major transportation routes, Interstate-5 and the Santiam Highway, are designated for general agricultural use (Fig. 2). The area further outside the boundary is designated for primary agriculture, which is zoned for exclusive farm use.

The area of concern regarding this research is that area east of the Salem Urban Growth Boundary designated for general agricultural use. The goal of development policy in this area is to encourage uses balancing the agricultural, residential, and open space needs of Marion County. The intent of the plan is to concentrate the major portion of the population growth within the defined urban areas and preserve as much agricultural land as possible. A minimal amount of low density residential development is permitted in the general agricultural use area. The policy guidelines refer to low density development being between three to five acres (1.21 to 2.02 hectares) per unit. One acre (.405 hectare) per unit is considered the minimum. Rural residential development is based on soil suitability, topography, land use character of the area, and public need. General policy guides for rural subdivisions include the following:[10]

1) Lot area should increase as slope increases;
2) as the number of units increase, density should decrease; and
3) the developer should utilize the planned unit method of development.

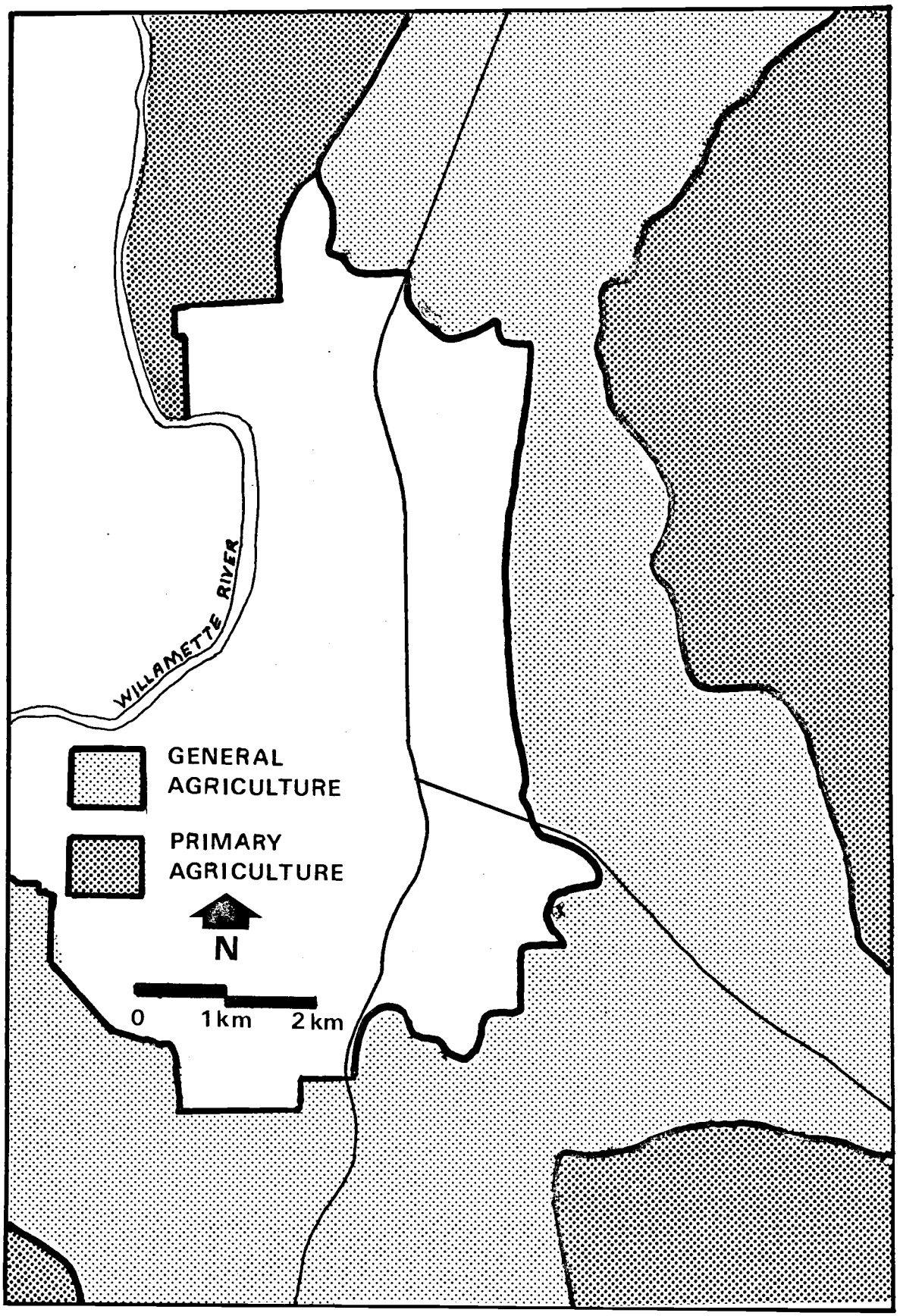

Fig. 2. General land use outside of the boundary.

Implementation of Rural Development Policy by County

The implementation of the rural development policy by the county began with a rezoning program in accordance with the comprehensive plan. In the years 1974 and 1975, the county rezoned land outside of the boundary in the general agricultural use area either exclusive farm use or acreage residential. The area east of the boundary was previously zoned rural residential which allowed property to undergo extensive subdivision and development. The area was rezoned in April, 1975 to acreage residential which is a more restrictive zone relating to development.

Senate Bill 487, passed in 1973, requires cities and counties to adopt land division standards consistent with local comprehensive plans.[11] It also requires that a process of intergovernmental coordination be established in the review of proposed subdivisions. The land use policies, goal statements, and resource data provided by the Marion County Comprehensive Plan are an important influence in the rural subdivision decision process. Important considerations involved in this decision process are the preservation of agricultural lands, consumer protection, environmental concerns, and public need.

As a result of the passage of Senate Bill 100 and the establishment of the Land Conservation and Development Commission, statewide land use planning goals and guidelines were adopted in December, 1974. Comprehensive plans, and any ordinances or regulations implementing the plans are to comply with the statewide goals by January 1, 1976. County compliance with the Land Conservation and Development Commission's (LCDC) Agricultural goal has been challenged in the area east of the Salem Urban Growth Boundary by the One Thousand Friends of Oregon (Fig. 3). The goal states that

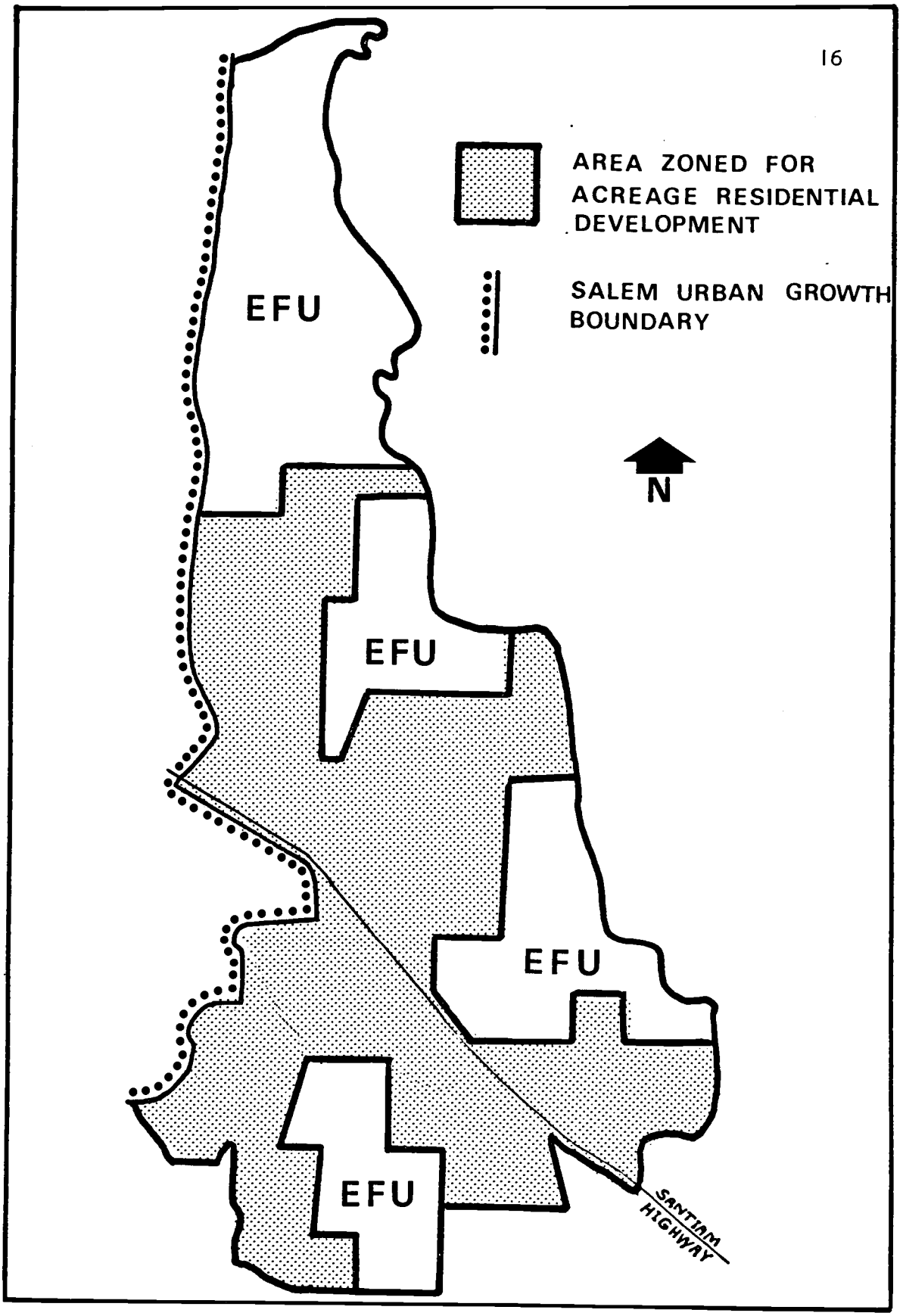

Fig. 3. East Salem area zoning.

all Class I through IV lands suitable for farm use shall be preserved and maintained.[12] The challenge resulted from the county placing a large part of this area of Class I through IV soils under acreage residential instead of exclusive farm use zoning. Marion County argued that the area had already undergone extensive subdivision and development. The LCDC's decision in February, 1977 ordered Marion County to reconsider its acreage residential zoning of the area in question. The commission also ordered the county to get special exception for each subdivision east of the Salem Urban Growth Boundary. According to the Marion County Planning Director, the decision would effectively halt much of the residential development that has been occurring in the area east of the boundary not set aside for exclusive farm use by the county.[13]

REVIEW OF SALEM URBAN GROWTH POLICY STUDIES

Two studies were published in July, 1972, dealing with the Salem urban growth policy. Potential impacts of the then proposed Salem Urban Growth Boundary on rural residential development and land value outside of the boundary were discussed. The opinions were qualified because at the time of the studies, public policy concerning the development of the rural area outside of the boundary had not been finalized.

Johnson (14) stated that the general long run purpose of the urban growth boundary was to control the spatial character of development. The scattered development that would have occurred outside the boundary would, under the urban growth policy, occur within the boundary. This could possibly produce an effect of increasing land values for certain types of land uses within the boundary for which demand is high and supply is limited. Johnson stated that conversely a reduction of land value

would occur on lands which taxes would increase in order to finance new urban services. The type and density of development permitted by the urban growth policy outside the boundary will have an important effect on the land supply within the boundary.

Johnson listed three possible impacts of the urban growth boundary which are dependent upon the public policies for development of the land outside the boundary and the demand within that framework:

1) High land values could result from a demand for ten to twenty acre (4.04 to 8.08 hectare) farms;
2) a reduction in land values resulting from decreased expectations for eventual urban use; or
3) stabilization or reduction of property taxes on peripheral land would tend to stabilize or increase land value for nonurban use.

Johnson suggested that there was a probability of a significant demand for small acreage residential uses outside of the boundary. Much of the land adjacent to the boundary on the county side is already divided into urban-sized lots of less than ten acres (4.04 hectares). This demand would reduce the demand for housing tracts within the boundary. Johnson concluded that except for the effect of property taxes, the establishment of the boundary would not have a general effect on land values outside of the boundary because only a small amount of this land could be used for urban use.

Beaton (15) observed that any zoning or restriction of land which removes or delays the chance of a higher use will depress the price of land by skimming off part of the speculative value. Land inside the

urban growth boundary will tend to increase in value to the degree that development appears more imminent. Beaton summarized possible impacts of the boundary according to five pieces of data:

1) Some increase in asking price for parcels inside the urban growth boundary;
2) although there are some complaints about restriction of alternatives outside of the boundary, and some depressed asking prices, few sales are not taking place immediately outside of the boundary;
3) farming or partially-serviced low density development remains the expectation outside of the boundary;
4) Health Department observations show that nonsewered activity may become even more dispersed throughout county areas. This could result in slightly higher land prices outside, but not immediately adjacent to the urban growth boundary; and
5) building permit issuance outside as compared to inside the City of Salem shows evidence of increasing dramatically.

Beaton concluded that the urban growth boundary had temporarily reduced land sale activity near the boundary, both inside and outside. Developers were waiting before paying increased prices inside the boundary, and landowners were waiting rather than accepting lower prices just outside of the boundary. According to the Health Department and building permit evidence, developers may tend to go outside the boundary to unincorporated county areas in search of land for low density residential development because of market conditions inside and in proximity to the

boundary.

ANALYSIS OF DEVELOPMENT TRENDS AND LAND VALUE IMPACT

The following analysis is an attempt to gain some idea of the impact of the urban growth boundary and related rural development policies on residential land development trends and land value outside the boundary. The previously mentioned studies suggested possible impacts of urban growth boundary implementation. They were not able to take into consideration rural development policy implementation which followed the completion of the two studies.

Development Trends Outside of the Boundary

An attempt was made to analyze building trends in the unincorporated areas outside of the Salem Urban Growth Boundary. The numbers of building permits issued with septic tanks in unincorporated Marion County were gathered from the Marion County Department of Building Inspection. The assumption was made that the majority of this activity is located in the general Salem area. The objective was to associate permit trends with the urban growth boundary and rural development policy implementation. The only strong relationship that can be associated with the data, based on available information, is the relationship of permit issuance with population growth of the Greater Salem area (Table 2).

Any significant analysis of building permit with septic tank issuance in relation to urban growth boundary and rural development policy implementation would have to be done in a spatial context. This would involve the determination of the number of those permits issued for inside the growth boundary compared to the number and location of those

issued outside of the boundary. Time did not allow the examination of the permits on an individual basis in terms of location.

TABLE 2. BUILDING PERMIT WITH SEPTIC TANK ISSUANCE AND GREATER SALEM POPULATION GROWTH, 1972-1976.

	Building permits with septic tanks	Percent change in population*
1972	800	+ 2.9
1973	720	+ 1.7
1974	574	+ .8
1975	516	+ .2
1976	640	+ 4.3

*Source: Portland State Center of Population Research and Census.

Rural Subdivision Trends Outside of the Boundary

The number of rural subdivisions that have received approval from the Marion County Planning Commission since 1971 shows a strong relationship to the implementation of county rural development policy (Table 3). Most of this rural subdivision activity is located in unincorporated areas to the north, east, and south of Salem. The activity is concentrated about the Santiam Highway to the east of Salem, and to a lesser degree, concentrated about Interstate-5 to the north and south of Salem. The area to the east of Salem has always been an area of greater rural subdivision activity because of proximity to Salem, zoning, and its rural setting.

The implementation of rural development policy is reflected by the number of subdivision approvals in this area as it is for the whole county. This trend reflects policy considerations such as the preservation of agricultural lands, environmental concerns, and public need. The average lot size in approved subdivisions is increasing in accordance to the density per unit goal of the rural development policy. Since policy development, public need has been an important factor in rural subdivision approval. A field survey was undertaken by the Marion County Planning Department in 1973 and 1974. The survey revealed that new housing starts in rural subdivisions to the east of the Salem Urban Growth Boundary, totaled disproportionately less than the number of available lots.[16] Several proposed subdivisions in the area were denied on this basis.

Rural subdivision activity outside of the Salem Urban Growth Boundary is presently at a minimum. This trend can be associated with rural growth policy implementation, especially public need considerations. The LCDC decision to order the county to reconsider its acreage residential zoning in the East Salem area will further limit rural subdivision development in the area.

TABLE 3. APPROVED RURAL SUBDIVISIONS, 1971 - 1976.

	Number approved	Total number of lots	Lots per subdivision (average)	Total area ac (ha)	Average lot size ac (ha)
			Marion County		
1971	19	322	16.9	738 (299)	2.3 (.93)
1972	22	548	24.9	1474 (597)	2.6 (1.05)
1973	14	406	29.0	1738 (703)	4.2 (1.7)
1974	5	68	13.6	220 (89)	3.2 (1.3)
1975	1	10	10.0	42 (17)	4.2 (1.7)
1976	1	(preliminary approval)			
			East Salem Area		
1971	9	128	14.2	333 (135)	2.6 (1.05)
1972	8	223	27.9	559 (226)	2.5 (1.01)
1973	5	96	19.2	353 (142)	3.8 (1.5)
1974	0				
1975	1	10	10.0	42 (17)	4.2 (1.7)
1976	0				

Source: Marion County Planning Department, Rural Subdivision Study, Marion County, Oregon, June, 1975, pp. 13-27.

Analysis of Rural Land Value Impact

The impact of the county's rural development policy is readily apparent when analyzing rural subdivision data. Another question is the impact of urban growth policy such as urban growth boundary implementation and county zoning on land values of rural residential-sized lots. This

will attempt to identify any significant impact of the urban growth boundary and related rural development controls on land values.

The area selected for the study is the area east of the Salem Urban Growth Boundary (Fig. 1). The study area is bounded by the Little Pudding River on the east, Hazel Green Road on the north, Salem's Urban Growth Boundary on the west, and the Turner-Aumsville Highway on the south. The study area is within the area designated for general agricultural use by the Marion County Comprehensive Plan, and is presently zoned acreage residential. It has undergone extensive subdivision and development. Most of this development occurred before the adoption of the Salem Urban Growth Policy and the implementation of related controls. The urban growth boundary was adopted in February, 1974, and the study area was rezoned from rural residential to the more restrictive acreage residential zoning in April, 1975 (Fig. 3). The LCDC decision regarding zoning and special exception procedures in the study area is too recent to consider in this land value impact analysis.

Multiple regression variables. The multiple regression analysis of land value on selected independent variables is an attempt to isolate and identify any significant impact of urban growth policy implementation, such as the urban growth boundary and zoning, on land value. The land value data, used as the dependent variable, was selected from bare land sale activity within the study area. Land sale parcels were between one and fifteen acres (.405 and 6.07 hectares). The land sale data were obtained from the Marion County Assessor's Office. Sale data are limited to the years 1973 to 1976. The land sale figures were adjusted for inflation using 1974 as the base year.[17]

Land values are influenced by many factors, as previously discussed. A complete multiple regression analysis of land value on all possible independent variables is out of the question as far as this study is concerned. It is hoped that the variables used in the analysis will explain a large portion of land value; however, the limitations must be kept in mind. The following independent variables were selected for the multiple regression analysis, with special interest in the possible impact of the urban growth boundary implementation and the zoning change:

1) Physical suitability of soils relating to building and septic tanks;
2) agricultural suitability of the parcel;
3) distance of the parcel to the central business district and its distance from major roads;
4) parcel size;
5) property tax;
6) average interest rate on loans for year parcel was sold;
7) population growth for year parcel was sold;
8) building permits with septic tanks issued by county;
9) rural subdivision activity;
10) zoning of the parcel when it was sold; and
11) the date parcel was sold in relation to the implementation of the urban growth boundary.

The physical suitability of the soil relating to building and septic tanks, agricultural suitability, distance to the central business district and road access, and parcel size were variables used to identify tract characteristics influencing land value. The physical suitability of soils

relating to building and septic tanks was severe for all parcels.[18] The majority of soils were Class II agricultural lands. Parcel sizes used in the study are a limiting factor regarding the agricultural potential of the parcel. Based on Soil Conservation Service information, slope was the only variable differentiating the various parcels in terms of potential building costs. The location of each parcel was obtained from the Marion County Assessor's Office. The parcels' distances in relation to the Salem central business district and road access were computed.

Property tax rates, average loan interest rates, population growth, and residential building activity were variables used to identify influencing economic and demographic characteristics. The property tax rates, obtained from the Assessor's Office, affect holding costs of the parcel. The average loan interest rates reflect the availability of money in the market. Loan interest rates decreased from 8.5% in 1971 to 7.75% in 1973. Since 1973, the interest rates have increased to 11% in 1976. Changes in market interest rates affect the amount of money one is willing to invest in land. Population growth of the Greater Salem area, building permits issued, and subdivision activity were selected as possible influences or indicators of rural residential demand and possible speculation as a result of demand.

Institutional characteristics, concerning the study area, possibly influencing development and value potentials of the parcels are the implementation of the Salem Urban Growth Boundary, and the rezoning of the area in accordance to the rural development policy. The objective of this analysis is to identify possible land value impacts resulting from these two variables.

Multiple regression results. The stepwise regression procedure added one independent variable at a time generating a series of intermediate regression equations (Table 4). The order that the variables are added on each successive step is determined by the partial correlations between the dependent and remaining independent variables. The independent variable with the highest partial correlation of those remaining is added. This procedure continues until all independent variables enter into the equation.

The overall significance of the multiple regression was tested by the use of the F-ratio or variance ratio. The null hypothesis stated that there was no significant regression of the dependent variable on the independent variables. The computed F-ratio exceeded the critical value at the .05 level of significance; therefore, the null hypothesis was rejected.

The t-test (a ratio of the regression coefficient to the standard error of the regression coefficient) was used to determine the significance of the partial regression coefficient of each independent variable in the equations. The null hypothesis was accepted for those independent variables with t values lower than the critical t values. The acceptance of the null hypothesis suggests that the data does not provide sufficient evidence of a functional relationship with the dependent variable.

The final regression equation explains 71% of the variation in land value. Only two variables are significant at the .10 level in the final equation. These two variables are the distance of the parcel from the central business district of Salem, and the rezoning of the study area from rural residential to acreage residential where the sale parcels are

TABLE 4. SUMMARY TABLE FOR THE STEPWISE REGRESSION MODEL.

Step	Variable	R^2	Regression Coefficient	Standard error of regression coefficient	t value	Significance level
1	Parcel size (2)	.373	b_2 = -221.3	62.6	-3.53	.01
2	Distance to CBD (5)	.520	b_2 = -189.2	57.6	-3.28	.01
			b_5 = -455.5	183.8	-2.47	.05
3	Slope (4)	.560	b_2 = -139.9	68.1	-2.05	.10
			b_4 = 92.4	70.9	1.30	.40
			b_5 = -633.2	226.3	-2.80	.02
4	Zoning (10)	.580	b_2 = -136.5	68.5	-1.99	.10
			b_4 = 76.6	73.2	1.05	.40
			b_5 = -640.0	227.3	-2.82	.02
			b_{10} = 308.5	334.5	.92	.40
5	Permits (11)	.628	b_2 = -170.1	70.0	-2.43	.05
			b_4 = 67.1	71.1	.94	.40
			b_5 = -658.7	220.3	-2.99	.02
			b_{10} = 573.6	369.2	1.55	.20
			b_{11} = 3.7	2.5	1.49	.20

TABLE 4. SUMMARY TABLE FOR THE STEPWISE REGRESSION MODEL. (Continued)

Step	Variable	R^2	Regression Coefficient	Standard error of regression coefficient	t value	Significance level
6	Property tax (3)	.645	b_2 = -162.1	71.1	-2.28	.05
			b_3 = 156.1	181.4	.86	.50
			b_4 = 54.3	73.1	.74	.50
			b_5 = -688.5	224.6	-3.06	.01
			b_{10} = 629.7	377.7	1.67	.20
			b_{11} = 4.84	2.8	1.71	.20
7	Interest rate (8)	.659	b_2 = -150.9	73.2	-2.06	.10
			b_3 = 240.9	211.3	1.14	.40
			b_4 = 106.6	98.4	1.08	.40
			b_5 = -840.8	295.2	-2.84	.02
			b_8 = -408.9	506.3	- .81	.50
			b_{10} = 865.3	480.6	1.80	.10
			b_{11} = 4.13	2.98	1.38	.20
8	Boundary (7)	.680	b_2 = -161.5	81.8	-1.42	.20
			b_3 = 373.2	253.2	1.47	.20
			b_4 = 184.1	127.7	1.44	.20
			b_5 = -991.7	335.7	-2.95	.02
			b_7 = -747.5	783.4	- .95	.40
			b_8 = -573.5	536.3	-1.07	.40

TABLE 4. SUMMARY TABLE FOR THE STEPWISE REGRESSION MODEL. (Continued).

Step	Variable	R^2	Regression Coefficient	Standard error of regression coefficient	t value	Significance level
			b_{10}= 1051.0	519.8	2.02	.10
			b_{11}= 1.46	4.1	.36	.90
9	Pop. growth (9)	.703	b_2 = - 99.0	83.8	-1.18	.40
			b_3 = 562.8	317.8	1.77	.20
			b_4 = 205.7	129.7	1.58	.20
			b_5 = -1212.7	403.5	-3.00	.02
			b_7 = - 920.1	803.2	-1.14	.40
			b_8 = -1362.4	961.7	-1.41	.20
			b_9 = 456.4	461.7	.99	.40
			b_{10}= 1472.6	672.7	2.18	.10
			b_{11}= - 4.48	7.3	- .62	.90
10	Access (6)	.710	b_2 = - 134.2	107.8	-1.24	.40
			b_3 = 582.6	328.8	1.77	.20
			b_4 = 209.1	133.5	1.56	.20
			b_5 = -1218.6	415.0	-2.93	.02
			b_6 = 588.2	1083.8	.54	.90
			b_7 = - 904.8	826.4	-1.09	.40
			b_8 = -1473.5	1009.9	-1.45	.20
			b_9 = 512.8	486.0	1.05	.40

TABLE 4. SUMMARY TABLE FOR THE STEPWISE REGRESSION MODEL. (Continued)

Step	Variable	R^2	Regression Coefficient	Standard error of regression coefficient	t value	Significance level
			b_{10} = 1476.1	691.8	2.13	.10
			b_{11} = - 5.1	7.56	- .67	.90
11	Sub-division activity (12)	.711	b_2 = - 134.6	112.4	-1.19	.40
			b_3 = 547.9	379.9	1.44	.20
			b_4 = 211.4	139.6	1.51	.20
			b_5 = -1226.2	434.1	-2.82	.02
			b_6 = 640.5	1156.3	.55	.90
			b_7 = - 842.5	910.0	- .93	.40
			b_8 = -3210.2	8256.7	- .39	.90
			b_9 = 500.4	509.9	.98	.40
			b_{10} = 1531.5	766.9	1.99	.10
			b_{11} = 20.9	122.5	.17	.90
			b_{12} = - 603.1	2844.1	- .21	.90

N = 23

m = 11

located and exclusive farm use in adjacent areas. The zone change was in accordance to the rural development policy of the Marion County Comprehensive Plan. The distance variable has a negative impact on land value which is consistent with land value theory. The lack of significance of parcel size is probably accountable to the limited size range of parcels used in the study. The regression coefficient of the zoning variable shows a positive impact on land value as a result of the April, 1975 zoning change. The other variable of interest in the study, the implementation of the urban growth boundary, is significant only at the .40 level. The regression coefficient of this variable shows a negative impact on land value; however, the impact does not appear significant in this analysis.

CONCLUSION

Rural subdivision activity outside of the Salem Urban Growth Boundary reflects the implementation of urban and rural development policies. The rezoning of the East Salem area to the more restrictive acreage residential zoning in accordance with rural development policy seems to have had a positive impact on the land value of the selected parcels. The reasons behind this impact could be related to supply and demand factors concerning a particular type of use such as small acreage farming; however, more detailed information is needed before assumptions can be made. Based on this study which covered a time period between 1973 and 1976, the impact of the urban growth boundary was not significant. The possibility exists that if there was a significant impact directly associated with the boundary, it occurred before 1973 when the boundary was in its proposal stage.

This analysis had many limitations. More complete studies must be done to analyze trends and impacts in areas inside and outside of the

urban growth boundary. Data collection regarding the regression of independent variables on land value must be more intensive before an accurate isolation of impacts can be obtained. A detailed site analysis of each parcel used in the regression analysis would probably explain a large portion of land value variation that went unexplained in the analysis.

FOOTNOTES

1. Mid Willamette Valley Council of Governments, An Urban Growth Policy for the Salem, Oregon Area - Supplement No. 1 to the Salem Area Comprehensive Plan, December 1974, p. 2.
2. Ibid., p. 14.
3. Marion County Planning Department, Rural Subdivision Study, Marion County, Oregon, June 1975, p. 9.
4. C. R. Beaton, Costs of Urban Growth for the Salem, Oregon Area - Urban Growth Policies Report No. 4, July 1972, p. 47.
5. Developmental Effects of an Urban Growth Boundary on the Salem, Oregon Area - Urban Growth Policies Report No. 5, by D. N. Johnson, Associate Director, (Eugene: Bureau of Governmental Research and Service, July 1972), p. 34.
6. Ibid.
7. Interview with Ann Mounteer, Mid Willamette Valley Council of Governments, Salem, Oregon, October 1976.
8. Mid Willamette Valley Council of Governments, op. cit., footnote 1, p. 6.
9. Ibid., p. 14.
10. Mid Willamette Valley Council of Governments, Comprehensive Plan, Marion County, Oregon, June 1976, p. 85.
11. The Changing Role of Government in the Subdivision and Partitioning of Land In Oregon, Planning Bulletin No. 8, (Eugene: Bureau of Governmental Research and Service, January 1975), p. 15.

12. Oregon Land Conservation and Development Commission, Statewide Planning Goals and Guidelines, 27 December 1974, p. 4.

13. "County Told to Reconsider Zoning Plan East of Salem," Oregon Statesman, 12 February 1977, p. 1.

14. Johnson, op. cit., footnote 5, pp. 39-42.

15. Beaton, op. cit., footnote 4, pp. 45-48.

16. Marion County Planning Department, op. cit., footnote 3, p. 7.

17. U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index - Detailed Report, 1972-1976.

18. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Marion County Area, Oregon, September 1972.