14

Analysis of the Agricultural Economic Trends and Conditions in Clark County, Washington

Prepared for Clark County, Washington
By Globalwise, Inc.

April 16, 2007

Preliminary Report

Acknowledgements

Many people were contacted during this analysis and their time and perspectives are gratefully acknowledged. The full list of contacts is at the end of the report in Appendix E.

Photographs used in this report are from several sources. Charles Brun, Clark County Extension Office, generously offered photos from his extensive digital photo library. Historical photos are from the archives of the Clark Conservation District, and include one from Al Monner. Staff at the County also generously shared photos.

Many staff in the departments of Community Planning and Assessment and GIS have been very helpful during the course of this analysis. Their assistance with retrieving data and assisting with the GIS maps, data tables and related information collection is greatly appreciated.

Table of Contents

Executive Summary iv

Introduction 1

Historical Conditions 2

Historical Description of the Extent and Location of Farms *2*
The Land Base of All Farms *3*

Number of Farms by Income and Acreage 5

Economic Trends in Clark County Agriculture 8

Total Net Farm Income *8*
Average Farm Proprietor Income *9*
Proprietor Employment as Share of Farm Employment *9*
Total Farm Employment *10*
Farm Employment as Percent of Total Employment *11*
Average Earnings per Farm Job *12*
Hired Farm Labor Expenses *12*

Current Conditions in Agriculture 14

Location and Types of Farms *14*
Berries *17*
Tree Fruits *17*
Vegetables *17*
Christmas Tree Farms *18*
Ornamental Plant Nurseries *20*
Other Specialty Crops *21*
Wineries and Wine Grapes *21*
Beef Cattle *21*
Cow and Goat Dairies *22*
Horses *22*
Poultry and Eggs *24*
Other Livestock *24*

What is Commercial Agriculture? 25

Changing Conditions for Agricultural Production 26

Financing Farms *26*
Local Marketing *27*

Review of the Recent Supreme Court Ruling 28

Agricultural Land in Clark County 29

Land in the Expansion Areas that are in the Agriculture Zone at the Current UGA Boundaries *29*
Agricultural Land in the Expansion Areas *30*
Farms within the Cities and in Expansion Areas 31
Agricultural Current Use Tax Land in Expansion Areas 33
Location of Land in Current Use Taxation *33*
Location of Agricultural Land in Current Use Taxation Relative to Agriculture Zoning *35*

Current Contributions of Agriculture to the Economy of Clark County 37

Covered Employees and Establishments 37
Community Economic Impacts 38

Agriculture and the Clark County Economy – Changes from 1994 to 2004 42

Agricultural Sector Changes..... 42
The Food Manufacturing Industry 45

Conclusions 48

Appendix A: Sub Area Maps Showing Location of Agriculture Zoned Land.....50

Appendix B: Description of the Impact Methodology 57

Appendix C: Clark County Economic Sector Performance for 1994 & 2004..... 58

Appendix D: WAC Criteria for Agricultural Land Designation..... 61

Appendix E: Study Contacts..... 62

List of Tables

Table 1 — Farms in Clark County, 1987, 1992, 1997 and 2002 5

Table 2 — Farms by Size in Clark County 6

Table 3 — Types of Agricultural Crops Grown on Farms in Clark County 6

Table 4 — Characteristics of Land in the Ag 20 Zone and Expansion Areas 29

Table 5 — Types of land Use in the Alternative 2 Expansion Area 30

Table 6 — Types of land Use in the Alternative 3 Expansion Area 31

Table 7 — Number of Parcels and Acres in Identified Farms by Jurisdiction 32

Table 8 — Land Added to Farm and Agriculture Current Use in Clark County, 1994 to 2004 35

Table 9 — Covered Employment, Earnings, and Establishments in Clark County, 2002 to 2005 38

Table 10 — Estimate Value of Direct Agricultural Output Loss under Alternatives 2 and 3 39

Table 11 — Clark County Total Economic Impact Due to Loss of Agricultural Acreage under Alternatives 2 and 3 40

Table 12 —State and Local Tax Impacts Due to Loss of Agricultural Acreage under Alternatives 2 & 3 41

Table 13 — Economic Contribution of Agriculture in Clark County, 2004 44

Table 14 — Economic Contribution of Agriculture in Clark County, 1994 44

Table 15 —Local Agricultural Contributions to Food Manufacturing Sectors, Clark County, 2004 45

Table 16 — Local Agricultural Contributions to Food Manufacturing Sectors, Clark County, 1994 46

Table C-1 — Clark County Output, Employment, Labor Income, and Other Value Added, 2004 57

Table C-2 — Clark County Output, Employment, Labor Income, and Other Value Added, 1994 58

000172

List of Figures

Figure 1 — Total Net Farm Income for Clark County, 1969 to 2004 8
Figure 2 — Average Farm Proprietors Income 9
Figure 3 — Proprietor Share of Total Farm Employment, Clark County, 1969 to 2004 10
Figure 4 — Clark County Farm Employment, 1969 to 2004 11
Figure 5 — Farm Employment as a Percent Total Employment in Clark County, 1969 to 2004 11
Figure 6 — Average Earnings per Job in Clark County, 1969-2004 12
Figure 7 — Total Hired Farm Labor Expenses in Clark County, 1969 to 2004 13
Figure 8 — Map of Identified Farms by Farm Type in Relationship to Preferred Alternative 15
Figure 9 — Map of Prime Agricultural Soils with Location of Identified Farms 16
Figure 10 — Map of Land in Current Use by Time Periods 34
Figure A-1 — Map of Battle Ground Preferred Alternative Boundary with Farms and Rural Zoning 50
Figure A-2 — Map of Camas Preferred Alternative Boundary with Farms and Rural Zoning 51
Figure A-3 — Map of La Center Preferred Alternative Boundary with Farms and Rural Zoning 52
Figure A-4 — Map of Ridgefield Preferred Alternative Boundary with Farms and Rural Zoning 53
Figure A-5 — Map of NW Vancouver Preferred Alternative Boundary with Farms and Rural Zoning 54
Figure A-6 — Map of NE Vancouver Preferred Alternative Boundary with Farms and Rural Zoning 55
Figure A-7 — Map of Washougal Preferred Alternative Boundary with Farms and Rural Zoning 56

Executive Summary

Clark County has grown and changed remarkably in the last 50 years One industry that has not shared in that growth is agriculture In fact, agriculture in Clark County has been in general decline for decades This report documents many of the changes, assesses current conditions and evaluates the effects of the expansion of the county's Urban Growth Boundaries on agriculture

The county's traditional agricultural enterprises include dairy, cattle, fruit and vegetable production All of these sectors are in decline The most promising sector is plant nurseries Christmas tree production has probably reached its plateau Small scale livestock operations such as sheep and goat farms are found in small numbers throughout the county, as are diversified fruit and vegetable operations which generally engage in direct marketing Food processing in the county is not linked to county production, except for the lone remaining milk bottling plant

As the overall economy of Clark County increases, agriculture is a shrinking share In 2004, agriculture employment accounted for about one percent of the county's total employment Local agriculture also does not contribute very significantly to local food manufacturing The analysis of the Clark County economy for 2004 showed that less than four percent of the county's food processing is contributed from within the county when measured by the value of county raw product inputs as a percentage of the value of output (Table 15)

Economic data from the Bureau of Economic Analysis shows that total farm income in Clark County has been steadily declining During the period of 1969 to 2004, farm income peaked in 1973 at $41 8 million and was lowest in 2002 at $6 3 million (all in 2004 dollars, see Figure 1) Farm income rebounded somewhat in 2003 and 2004 from the low in 2002 In 2004 the average Clark County farm proprietor's income was $10,560 (Figure 2) This reveals the part-time nature of farming in the county

Lack of income and profit by farmers in Clark County has led to reduced land area in commercial farming Reliable estimates are not available of how much commercial farm land has gone out of production over time. The one long term source of data on farmers and farm land is the U S Census of Agriculture and it is not limited to tracking commercial farming This data source reports a mix of commercial agriculture with land owners who conduct non-commercial agricultural activities

For this analysis, farms in Clark County were identified that are now actively engaged in commercial sales of farm and agricultural products This study has identified 145 farms with 3,115 acres in production Some of these farms are also leasing or renting additional land for their operations and this acreage is not reflected in the total

The 2002 Agriculture Census reports that there were 1,596 farms with 70,694 acres However, over half of these farms had sales of less than $2,500 Much of what the Agriculture Census is reporting is rural acreages that are comprised of the land area associated with the homes of rural residents who combine non-commercial agricultural

activities with their rural lifestyle The 2002 Agriculture Census does report 170 farms with gross income of $25,000 or more

Much more land is in the current use farm and agriculture program than is commercially farmed As of 2006 there is a total of about 48,450 acres in these designations in the county Over 95 percent of the acreage was placed in the program from the time the program began in the early 1970's through 1993 The remaining five percent (2,150 acres) are parcels that were placed in the current use program after 1993 The acreage being placed in current use for farm and agriculture designation is declining rapidly

Based on analysis of the most active farms currently in Clark County, about 28 percent of the land (868 acres) in these farms is within the cities' incorporated areas, adopted UGAs and Preferred Alternative UGA boundary Inevitably, some or even most of this land will go out of production However, historical trends and existing conditions indicate that the action to expand the UGA boundary is not the cause for the diminishing long term commercial significance for agricultural production from these lands The land markets have already signaled that farmers will not bid for land for its agricultural productive capacity at prices equal to what buyers for homes and other development uses will pay Farming much of these land areas is not viable for the long term even though the following actions have been taken 1) the county's agricultural zoning limits development, 2) land owners can receive greatly reduced property taxes through current use farm and agricultural land designation and 3) technical assistance is offered to farmers through WSU Extension's various United States Department of Agriculture incentive programs

Rapidly escalating land prices in the County have created a major barrier for new farmers to enter this business Intervention in the land market by actions such as purchase of development rights is the only assured way of holding land for agriculture However, most often these types of land resource programs also need to be implemented with other farmer support programs to guide the agricultural industry to greater prosperity in a highly urbanizing county Clark County does not have the full array of agricultural support programs in place

Competitive economic forces among agricultural producers determine who has the right products at suitable prices to meet customer demand Consumer demand can alter the dynamics of the market and change the course of an industry Demand for locally produced food and other agricultural products is probably the most encouraging prospect for Clark County farmers However, the growth in local demand and the prices consumers are willing to pay is not sufficient to reverse the longstanding trends of declining farm activity or to encourage large numbers of farmers to locate in Clark County

Introduction

This report addresses the agricultural conditions of Clark County, Washington with consideration of the historical perspective, current conditions and future expected conditions. This report provides the Board of County Commissioners and others with objective data and background information to address the issues of agricultural resource lands designation and protection in the context of approving a preferred alternative for the new Comprehensive Growth Management Plan.

Clark County has a long and rich tradition of agriculture. Farmers and agricultural producers have always been very diverse with regard to what they produce and their size and types of operations. Yet this industry sector continues to evolve and change in response to many influences, and it will undoubtedly continue to do so in the future. Land use planning is one of the major influences over how much and of what type of agriculture remains in Clark County. Yet there are many, many other factors over which the county has little or no influence that direct this industry toward its future.

Two elements of the comprehensive planning process are considered:

1) Agricultural lands within the expansion areas (Alternatives 2 and 3 as of March, 2006 and the Preferred Alternative as of October, 2006).

2) Agricultural lands in the more rural areas of the county.

Analysis in this report emphasizes the conditions related to the expansion areas of Alternatives 2 and 3 and the Preferred Alternative. This is a fact-finding report that draws on existing information to the maximum extent possible. One county level data source that is almost universally relied upon for agricultural production data is the U.S. Census of Agriculture (Ag Census). It is certainly not perfect and its validity is often disputed. Nonetheless, it is official government data and it captures some trends since the census is taken every five years. This report also contains reference to other government data sources and special studies that address relevant topics covered in this report. The observations of local persons who are active as farmers/agricultural producers or who work closely with farmers are also referenced and considered (see Appendix E).

Bruce Prenguber of Globalwise Inc. is the principal author of this report. Globalwise is an agricultural economic consulting company based in Vancouver, Washington. Bruce has studied many aspects of local, regional, national and international agriculture over the past 25 years. He has also analyzed lands in the agricultural zone that are within the Urban Growth Areas (UGAs) of Clark County for their significance for long-term commercial agricultural production. Nick Beleiciks has assisted Globalwise with collection of agricultural data to describe agricultural activity and to estimate the economic contributions of agriculture to the overall county economy.

Historical Conditions

An in depth look at Clark County agriculture from the 1900's to the mid-twentieth century is available from a series of documents authored by the Washington State Department of Agriculture and USDA All references in this report to conditions in Clark County agriculture in 1954 or earlier are from these documents unless otherwise noted [1]

The U S Census of Agriculture (Ag Census) is also a primary document used in this report It is important to remember when reviewing census data in this report that there is no distinction of a "commercial" farm from a "non-commercial" farm the Ag Census counts a farm if the respondent self reports that they are a farmer, regardless of the amount of acreage so long as the farm income is actually or normally $1,000 or more per year It should also be pointed out that some of the newer (and typically smaller scale) types of diversified farms are not in the USDA database to receive the Ag Census, so their responses are often not included

Historical Description of the Extent and Location of Farms

In the 1950's there were over 200,000 acres in farms The 1957 report gives a general description of their location

> "Most of the county's 219,000 acres in farms are located on the alluvial plains of the Columbia, Lewis and Washougal Rivers, the Salmon and La Camas Creeks and on the sloping terraces above these streams Terraces and benchlands where the Columbia and other rivers meandered during early geological times are large in area " [2]

A description of land and soils also reveals how USDA considered soils, the general location of farm lands and utilization of the land for agriculture

> "The land of Clark County is divided into six broad classes of economic land use Class I and II lands are of high and better –than-average productivity and support the farms with the highest income This good farming land, however, is limited in area It includes the silty loams of the Columbia River bank flood plains surrounding Vancouver Lake and the low terraces along the river north of Vancouver Small areas are found east of La Center and on the drained lake bed of Fargher Lake northeast of Yacolt Class III and IV lands are about average in productivity and support farms of fair income when prices are good for farm products This area covers most of the higher terraces and sloping land five to fifteen miles inland from the Columbia River, including the prairies and bottom lands of the Washougal, La Camas, Salmon Creek, East Fork and Cedar Creek Valleys " [3]

---

[1] Clark County Agriculture Washington, Crop and Livestock Reporting Service Bulletin, published in 1957 The documents are at
http //www nass usda gov/Statistics by State/Washington/County Profiles/clark asp

[2] Crop and Livestock Reporting Service Bulletin, "Part III – Physical Description", Clark County Agriculture Washington, 1957 page 16

[3] Ibid page 19

The 1957 report also describes the relative importance of Clark County agriculture in terms of production in the rest of Washington to add perspective for the county's contributions in this earlier time

> "Clark is noted as the leading western Washington orchard growing area and as a county with well-diversified livestock, poultry and field crop type of agriculture The pattern of farming is greatly influenced by part-time farming and its proximity to the Portland urban area In production of plums and prunes, Clark County is second in the state and 32nd in the nation It also has ranked among the first ten counties of the state in production of cherries, pears, dairy products and turkeys according to recent census Clark was 21st in the state in value of farm products sold during 1954, with total sales of $8,584,322 Of this sum, $6,068,113 was received by producers for livestock and livestock products, eighth highest in Washington Income per farm is slightly below the state average mainly because of numerous, small, part-time farms which outnumber the larger commercial farms While secondary to manufacturing, agriculture has played an important part in the expanding population and economy of Clark County " [4]

A 1972 publication by USDA has a more recent descriptive assessment of agriculture in the county [5] Following are direct quotes from that report

- "About 42 percent of the county is cleared and in farmland " (Equivalent to about 168,000 acres)
- "Most of the farmland lies in the central, western and southwestern parts of the county This area is composed of terraces and terrace plains, about 30 to 800 feet above sea level "
- "In these areas farming is confined to the larger valleys Much of the cleared land is in hay and pasture "
- "Dairying is the most important farm enterprise in the county, it accounts for more than 40 percent of the value of farm products sold Other important farm products are vegetables, berries and orchard fruits "

The Land Base of All Farms

The U S Census of Agriculture was conducted in either five or 10 year intervals between 1900 and 1954 It shows the number of farms in the county grew steadily from 1,873 farms with 192,700 acres in 1900 to 4,934 farms with 204,850 acres in 1945 Note that the census has always counted all entities in the category of "farm" so long as there is at least $1,000 of sales

The peak year for acreage in farms was 1950 when the census reported that almost 220,000 acres were in farms This was 54 1 percent of the county's total land base A sizeable amount of woodlands were included in the total acreage estimate along with cropland, pasture and grass fields

---

[4] Crop and Livestock Reporting Service Bulletin, "Part I – History of Clark County Agriculture", Clark County Agriculture Washington, 1957, page 1

[5] See Soil Survey of Clark County, Washington, by Soil Conservation Service, USDA, November 1972, page 1

In contrast to the 1950's, the 2002 Ag Census reports that Clark County had 1,596 farms with 70,694 acres.

The historical farm statistics show that Clark County has always been dominated by small farms. However, "small keeps getting smaller". In 1954 it was reported that:

> "Small farms are characteristic of agriculture in Clark County. Over two thirds of all farms in the county are less than 50 acres in size."

In 2002 the census data shows 80 percent of all farms were less than 50 acres in the county. In 1954 the average size of farms in the county was 51 acres; in 2002 the average size was 44 acres and the median size was 20 acres.

Number of Farms by Income and Acreage

The Census of Agriculture shows a large number of respondents who reported gross sales of less than $2,500 and the numbers have fluctuated widely between 1987 and 2002 (see Table 1). The 2002 census shows a 78 percent increase in this category from 1997 to 2002.

Net income is one of the best determinants of what constitutes commercial farm businesses versus non-commercial farmers. Gross sales do not provide a clear indication of commercial farm businesses, but higher level of sales does correlate with on-going business intentions. Table 1 shows the number of farms with sales of $25,000 and over to give an indication of commercial farm trends. Comparison of 1987 to 2002 shows a decrease of 30 farms with sales of $25,000 or more. However the low point was in 1997 at 151 operations, and the number rose to 170 in 2002.

Table 1 - Number of Farms in Clark County: 1987, 1992, 1997 & 2002

Farms by Sales of Products	1987	1992	1997	2002	Percent Change 1997 to 2002
Less Than $2,500	716	596	523	931	+78
$2,500 to $4,999	242	228	215	203	-6
$5,000 to $9,999	196	148	158	157	nil
$10,000 to $24,999	114	130	128	135	+5
$25,000 to $49,999	40	43	51	41	-20
$50,000 to $99,999	35	30	34	35	+3
$100,000 Plus	125	82	66	94	+42
Grand Total	1,468	1,243	1,178	1,596	+35
Total With Sales Over $25,000	200	155	151	170	+13

Source: 1987, 1992, 1997 and 2002 U.S. Census of Agriculture for Clark County, Washington by National Agricultural Statistical Service, U.S. Department of Agriculture.

The census data also shows the amount of land in "all farms" and this is given in Table 2. There has been major growth in the number of farms in the 1 to 9 acreage class from 1997 when there were 297 farms reported compared to 471 in 2002. There was also an increase in the 10 to 49 acre class in the same five year period.

Table 2 - Farms by Size for All Farms in Clark County, 1987, 1992, 1997 & 2002				
Size of Farms (Acres)	1987	1992	1997	2002
1 to 9	274	271	297	471
10 to 49	679	610	543	793
50 to 179	367	285	246	264
180 to 499	84	68	70	51
500 to 999	19	15	14	14
1,000 or more	5	8	5	3
Average Farm Size	66	66	62	44

Note: "All farms" are farms reporting sales of $1,000 or more or farms that normally have sales of $1,000 or higher.
Source: 1987, 1992, 1997 and 2002 U.S. Census of Agriculture for Clark County, Washington by National Agricultural Statistical Service, U.S. Department of Agriculture.

Table 3 presents a comparison of the type of crops grown on farms in Clark County in 1997 and 2002. The largest single crop category produced in 2002 is nursery, greenhouse and floriculture crops at $18.7 million. Ranked second by total sales is milk and milk products at $9.5 million, followed by poultry at $7.0 million, fruit and berries at $5.8 million, cattle and calves at $4.67 million and Christmas trees at $1.3 million. All other categories had less than $1.0 million in estimated sales.

Table 3 - Type of Agricultural Products Grown on All Farms in Clark County : 1997 and 2002				
Value of Sales by Commodity/Group	1997		2002	
	Farms	$1,000	Farms	$1,000
Grains, Dry Beans, Dry Peas	NA	NA	17	$184
Vegetables, Melons, Potatoes, Sweet Potatoes	NA	NA	45	$974
Fruits, Tree Nuts & Berries	103	$4,155	117	$5,796
Nursery, Greenhouse, Floriculture, & Sod	NA	NA	140	$18,682
Cut Christmas Trees & Short-Rotation Woody Crops	NA	NA	46	$1,310

Table 3 - Type of Agricultural Products Grown on All Farms in Clark County : 1997 and 2002

Value of Sales by Commodity/Group	1997		2002	
	Farms	$1,000	Farms	$1,000
Poultry & Eggs	113	$5,983	120	$7,031
Cattle & Calves	838	$5,472	502	$4,718
Milk & Other Dairy Products from Cows	32	$14,231	25	$9,514
Hogs & Pigs	38	$91	49	$71
Sheep, Goats & their Products	NA	NA	105	$253
Horses, Ponies, Mules, Burros, & Donkeys	NA	NA	142	$562
Aquaculture	NA	NA	4	D
Value of Ag Products Sold Directly for Human Consumption	347	$817	290	$769
Value of Certified Organically Produced Commodities	NA	NA	21	$25

Notes: NA = Not Available; D = Not Disclosed

Source: Table 2, 2002 U.S. Census of Agriculture for Clark County, Washington by National Agricultural Statistical Service, U.S. Department of Agriculture

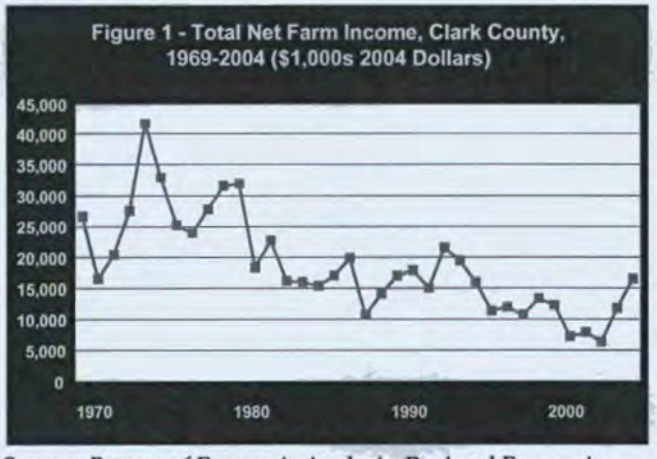
Economic Trends in Clark County Agriculture

The agricultural production sector of Clark County's economy, like the county's economy in general, has undergone many changes in recent years. To understand how Clark County's current agriculture sector compares to the county's historic tradition of agriculture, it is helpful to review the trends of key farm business indicators. Below are historical reviews of farm income and farm employment in Clark County from 1969 to 2004.

Total Net Farm Income

Net farm income is the annual difference between all farm related earnings and all farm related expenses. Farm related earnings include cash receipts from the sale of livestock and crops, government farm payments, home consumption of farm products, and rental income from farm machinery. The cash receipts received by farmers from livestock and crop sales are largely determined by prices set in the world commodity markets. To the extent that farmers "brand" their products or directly market their products to consumers, they may escape some of the world price competition. However, in aggregate, the farm product markets are primarily driven by highly volatile commodity and wholesale pricing. Farm income changes drastically from year to year. Farm related expenses include livestock, feed and seed purchases, chemical products such as fuel and fertilizer, and farm labor expenses. Farm input prices are also largely out of the farmer's control. Fuel prices are determined on the world market and can change significantly during a growing season, affecting net income. Labor costs are less volatile, but farmers face a steady increase in the cost of hiring workers.

Net farm income in Clark County over the past 35 years reflects the fluctuation in farm commodity output and input prices. Figure 1 shows the inflation adjusted total net farm income for all farms in the county, including sole proprietorships, partnerships, and corporations.

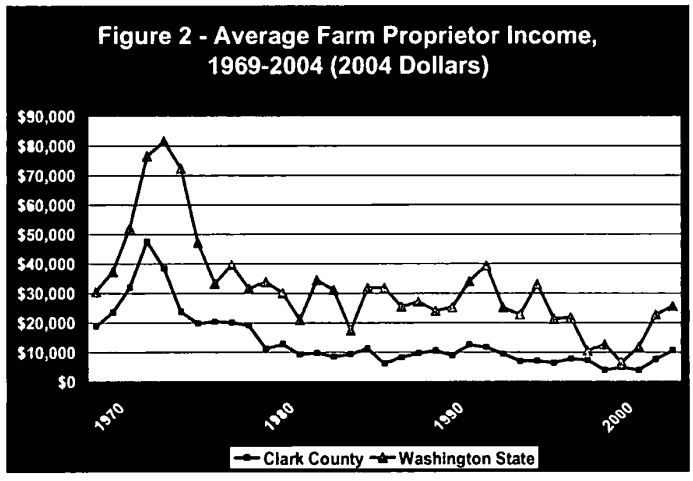


Source: Bureau of Economic Analysis, Regional Economic Information System, Table CA45, and Bureau of Labor Statistics, Inflation Calculator.

The best year for farm income in the county was 1973, when high commodity prices led the county's total net farm income to an adjusted high of $43 8 million The lowest level of total net farm income occurred in 2002, when declining agricultural acreage and low commodity prices dropped the county's total to $6 3 million Recent rises in commodity prices and the increase of nursery crop production in Clark County have brought total net farm income up to $16 5 million in 2004, the most current available year of data

Average Farm Proprietor Income

Average farm proprietor income reveals the general level of profit for non-corporate farms in Clark County Figure 2 shows the inflation adjusted average farm proprietor income from 1969-2004, and compares the county with Washington State's average farm proprietor income The trends for average farm proprietor income follow closely the total farm income trends in Figure 1 Income was highest in Clark County in 1973 at $47,663 when adjusted for inflation, and farm proprietor income reached its lowest point in 2002 at $3,902 Clark County farm proprietor income has been less than half of Washington State's average in most years For the most current available year 2004, Clark County's average was $10,563 and Washington State's average was $25,584

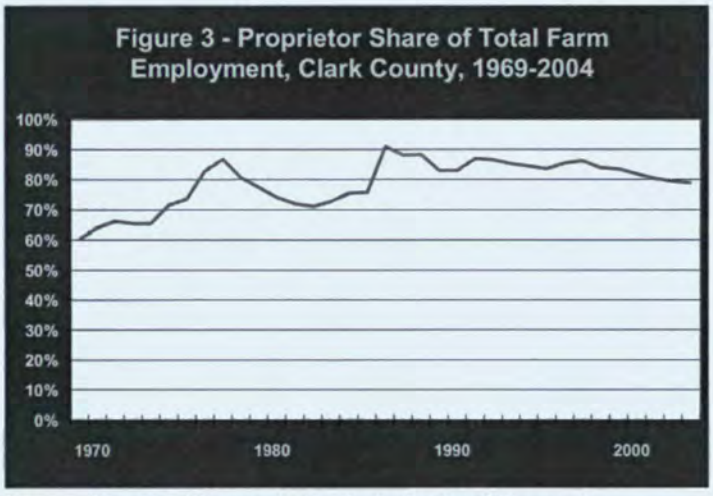


Source Bureau of Economic Analysis, Regional Economic Information System, Tables CA45 and CA05, and Bureau of Labor Statistics, Inflation Calculator

Proprietor Employment as Share of Farm Employment

On the county's small farms, the main source of labor is most likely the owner operator and family members Since farm labor expenses are significantly reduced on these types of farms, or they have another off-farm job to rely upon for the majority of the family income, some producers may be able to continue farming when commercial agriculture is otherwise no longer viable The percentage of proprietor farm employment suggests what proportion of farms in

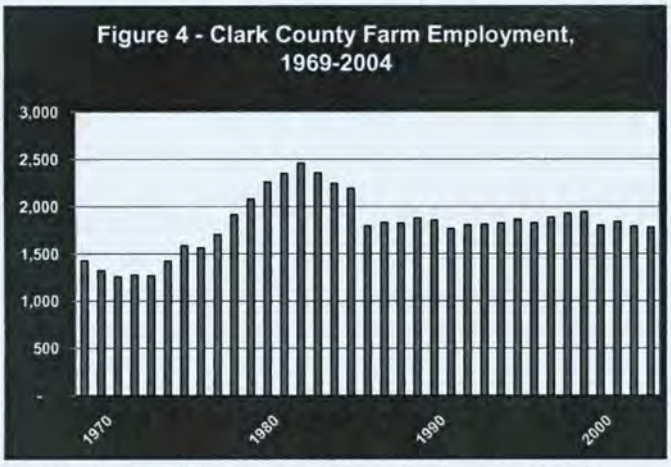
the county are these types of small farms. A low percentage indicates most farm work is performed by hired workers, which is more characteristic of large or commercial farms. Figure 3 shows partner and sole proprietor farm employment as a percentage of total farm employment in Clark County over the last 35 years. In 1969, these owner operators made up 60 percent of farm employment in the county. Farm proprietor's share of employment increased until 1978 when it reached 87 percent. It dipped through the next decade, but proprietor share of farm employment then reached its all time high of 91 percent in 1987. Proprietor share of farm employment has generally shrunk since then, and was 79 percent during the most current available year of 2004.



Source: Bureau of Economic Analysis, Regional Economic Information System, Table CA25.

Total Farm Employment

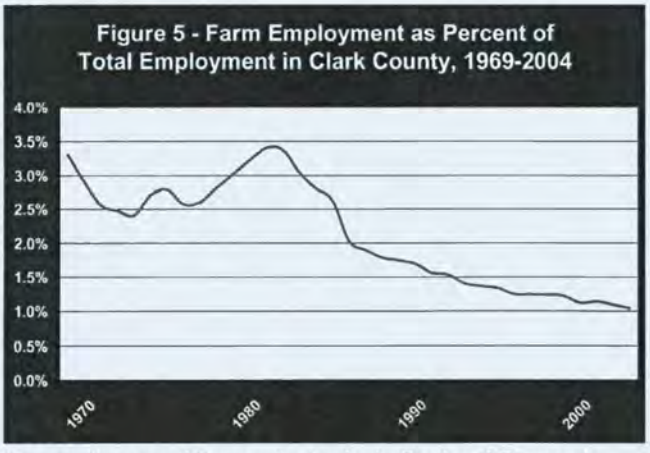
Total farm employment is the number of people who work in the direct production of crops or livestock. Unlike farm income, total farm employment in Clark County does not vary drastically from year to year. Figure 4 shows the total farm employment for all farms in the county, which includes sole proprietors and partners working on their own farms, the workers they hire, and hired laborers working on corporate farms. Farm employment in the county reached its peak in 1983 when there were 2,457 agricultural workers. The lowest level of total net farm income occurred in 1972, when there were 1,255 agricultural employees in the county. Total employment stabilized in 1987 and has since remained near the most current available figure of 1,778 workers in 2004.



Source: Bureau of Economic Analysis, Regional Economic Information System, Table CA25.

Farm Employment as Percent of Total Employment

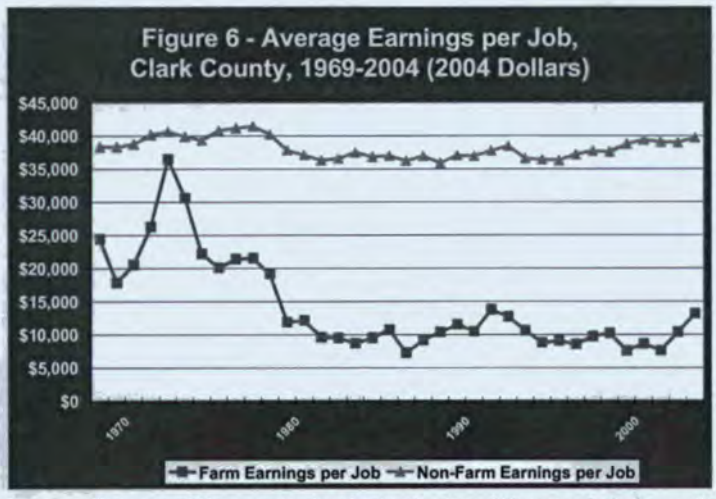
Total farm employment numbers show how many people are directly involved in agriculture. To understand how significant agriculture employment is relative to the size of Clark County's total workforce, farm employment needs to be compared to non-farm employment. Figure 5 shows the percentage of farm employment to total employment in the county over the last 35 years. Farm employment's share of total employment was highest in Clark County at 3.5 percent in 1969 and again in 1982-1983. Agriculture's share of total employment has declined steadily since then, and was 1.0 percent of total employment in 2004, the most current available year. Total employment in Clark County has risen every year since 1983. The steady rise of non-farm employment in comparison to the relatively flat number for farm employment accounts for the declining share of agricultural employment as a share of total county employment.



Source: Bureau of Economic Analysis, Regional Economic Information System, Table CA25.

Average Earnings per Farm Job

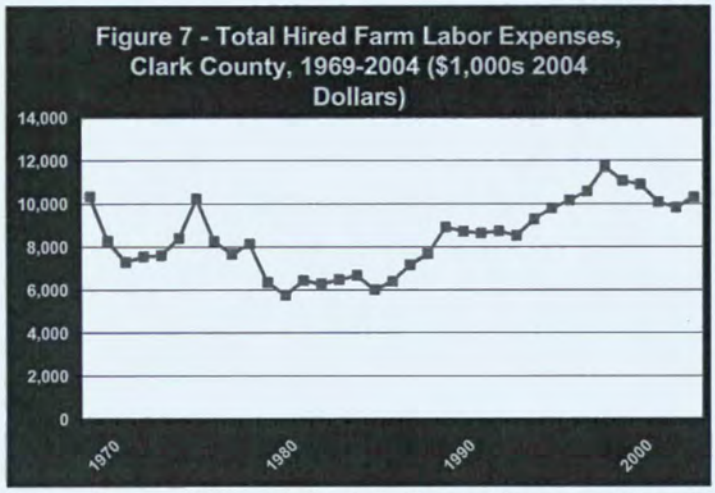
Agricultural jobs tend to be seasonal and many of these jobs pay less per hour than non-agricultural jobs. Consequently the average earnings for farm jobs are lower than other county jobs. Figure 6 compares the inflation adjusted average wage for farm and non-farm jobs in Clark County from 1969-2004. Farm wages were nearly as high as non-farm wages in 1973, but have since declined to well below half of non-farm worker's earnings. In 2004, the most current year, average farm earnings were $13,184, while non-farm earnings were $39,677.



Source: Bureau of Economic Analysis, Regional Economic Information System, Tables CA45 and CA05, and Bureau of Labor Statistics, Inflation Calculator.

Hired Farm Labor Expenses

The cost of hired labor for commercial farms is an important factor in overall profitability. Labor costs will affect whether or not a commercial farm can stay in business, and in which regions new commercial farms choose to locate. Figure 7 shows the inflation adjusted total farm labor expenses (which includes wages, benefits and employers' contributions to Social Security and Medicare) for all farms in Clark County. In 1999, hired labor expenses reached its highest level in the last 35 years at an adjusted $11.703 million. Clark County farms spent the least amount on labor in 1981 when labor expenses were $5.743 million in 2004 dollars. In 2004, the most current available year, Clark County farms spent about $10.295 million on hired farm labor expenses. Although farm labor expenses vary on a yearly basis, farm labor expenses have been generally increasing on an inflation adjusted basis since 1981.



Source: Bureau of Economic Analysis, Regional Economic Information System, Table CA45, and Bureau of Labor Statistics, Inflation Calculator.

Current Conditions in Agriculture

Based on conversations with farmers in the county, it is clear that for many years there has been a loss of the larger traditional commercial farms including dairies, berry farmers, fruit producers, and others Commercial broiler chicken production has remained fairly constant in terms of total production, but the number of growers has declined as the most successful or well capitalized farmers have expanded production One bright spot in Clark County agriculture is the ornamental nursery sector which has experienced growth in recent years Otherwise "new" agricultural production has primarily occurred among smaller scale farmers who tend to sell directly to consumers through farm stores, farmers markets, to subscription buyers or over the Internet New small scale agriculture has not made up for the loss of traditional farmers and the total amount of land devoted to commercial agriculture continues to decrease

Location and Types of Farms

The best way to analyze current conditions is to address farming at the individual farm level In this analysis, 145 farms (including nurseries and Christmas tree growers) have been identified As some data sources are at least one year old, some of these operations may be out of business A number of different sources have been used to identify and locate Clark County farms The information sources include Clark County Extension, published farms in local newspapers, industry directories, telephone directories and discussions with farmers The types of farms are classified as livestock/dairy, vegetable and/or fruit, nurseries, Christmas trees, or specialty crops There are 3,115 acres identified with the above farms

The land area associated with the farms has been tracked in the county GIS program There are two data limitations to recognize First, it is not possible to locate every commercial agricultural producer Second, there are many farmers who operate a part of their operation on leased land, and there is no information to link the farm ownership data with leased or rented lands, using GIS

Figure 8 is a map showing the location of the identified farms The farms are well dispersed throughout the lower elevation areas of the county The fruit and vegetable farms are generally located in the central part of the county, north of Vancouver and to the northwest in the vicinity of Ridgefield Christmas tree farms are well dispersed with some larger farmers east of La Center Livestock operations are also well dispersed

Figure 9 shows the general location of the identified farms with prime soils The prime soils outside of the city boundaries are quite broadly located across the lower elevations in Clark County Farms are quite evenly located around areas with either the prime/class I or II soils or the prime Class III soils Discussions with farmers, however, reveal that many of the newer farms have located based on many criteria with soils only being one factor of consideration

Agriculture in Clark County is diverse and conditions vary among the various sectors The following is a summary of agricultural conditions based mainly on discussions with local farmers and Extension personnel

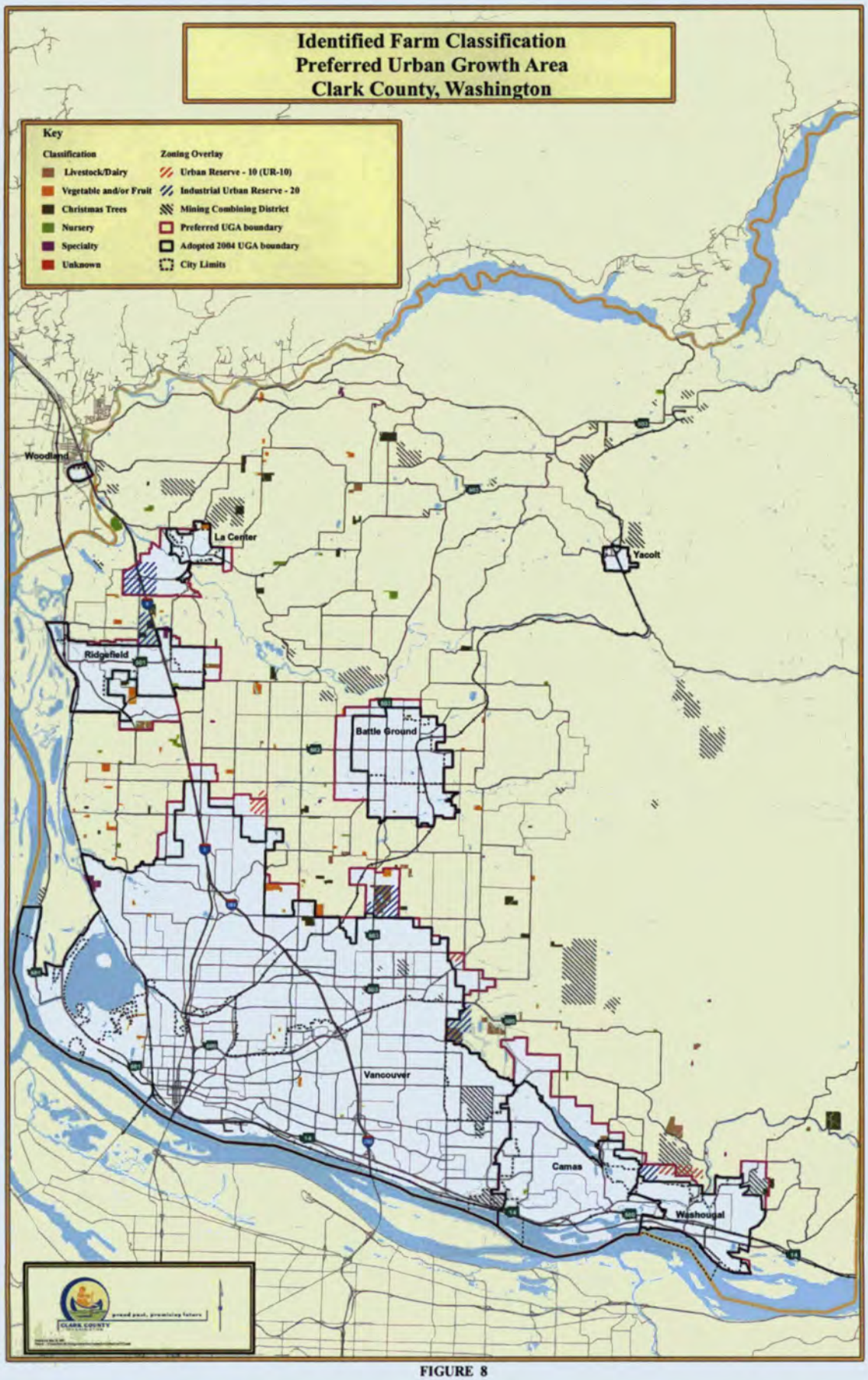

Identified Farm Classification
Preferred Urban Growth Area
Clark County, Washington
Key
Classification
Livestock/Dairy
Vegetable and/or Fruit
Christmas Trees
Nursery
Specialty
Unknown
Zoning Overlay
Urban Reserve - 10 (UR-10)
Industrial Urban Reserve - 20
Mining Combining District
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
Woodland
La Center
Yacolt
Ridgefield
Battle Ground
Vancouver
Camas
Washougal
CLARK COUNTY

FIGURE 8

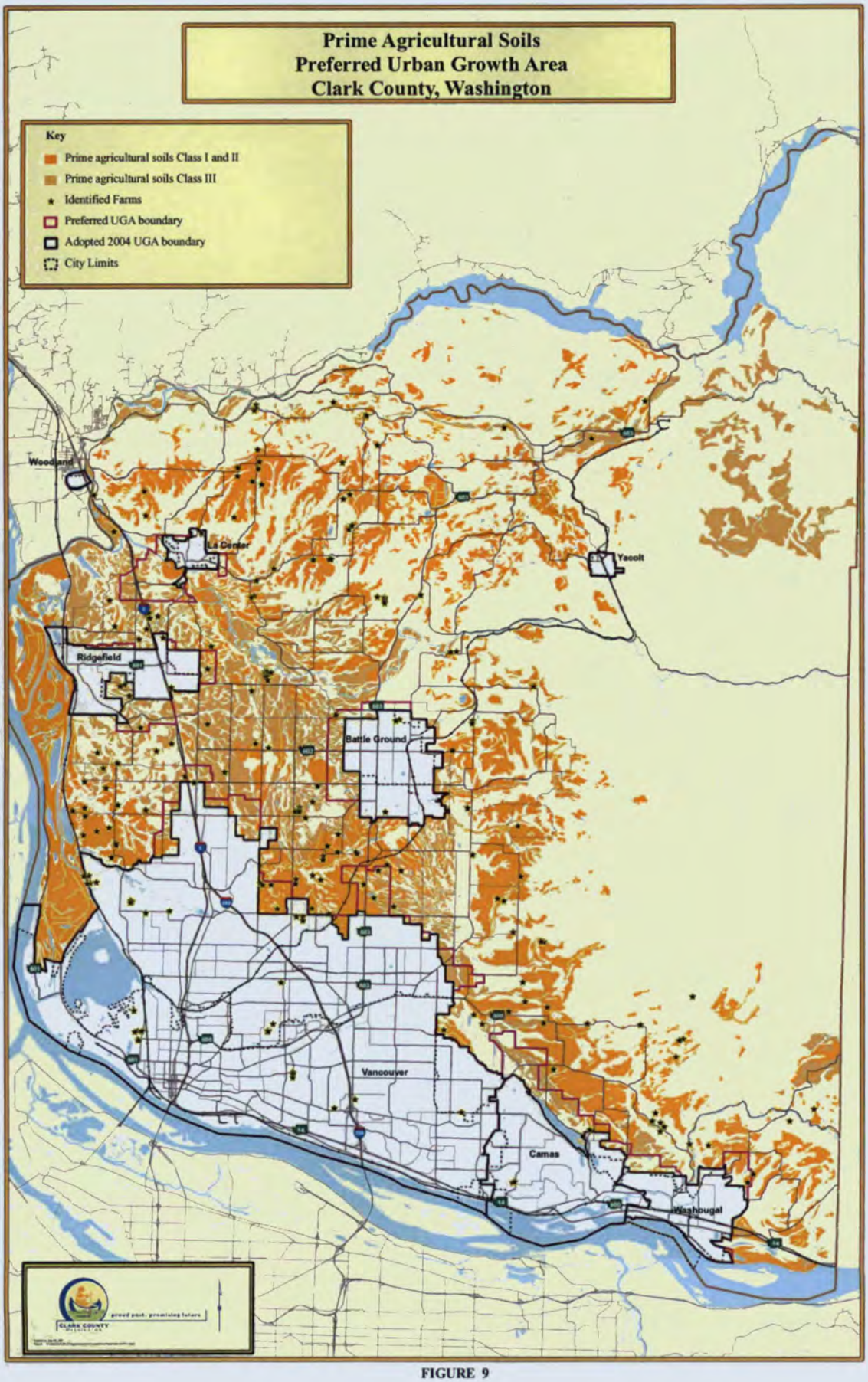

Prime Agricultural Soils
Preferred Urban Growth Area
Clark County, Washington
Key
Prime agricultural soils Class I and II
Prime agricultural soils Class III
Identified Farms
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
Woodland
La Center
Yacolt
Ridgefield
Battle Ground
Vancouver
Camas
Washougal

FIGURE 9

Berries

For many years red raspberries, strawberries, and blueberries have been key crops produced in Clark County. One bellwether crop, raspberries, is in decline. The Washington Red Raspberry Commission collects mandatory grower assessments which offer a picture of the trend in production of processed raspberries but does not cover the smallest producers of fresh raspberries. [6] Processed raspberries are marketed mainly in frozen whole form or converted to juice and juice concentrate. Their data shows steady attrition in the number of producers over the last five years. In 2000 there were 17 producers with 3.13 million pounds of production. The number of producers has steadily declined to 10 producers in 2005 with 2.5 million pounds of production. Washington agricultural statistics for 2004 show that Clark County is a distant third in raspberry production, after Whatcom and Skagit counties.

Consumer demand of blueberries is very strong and production in Clark County, as elsewhere in the Pacific Northwest, has responded. The state agricultural statistics estimate that in 2004 Clark County harvested 1.5 million pounds on 300 acres. New plantings are in the ground but there are no statistics to estimate the acreage.

Tree Fruits

Clark County was once a leading Italian prune producing county. That ended many years ago. Today tree fruit production is confined to a few farms, most of which do direct marketing. Peaches and apples are probably the main fruit trees left in production. Pear trees have historically been significant with Bartlett pear production for canning. However Clark County's Bartlett trees are nearly all gone as other fruit production areas in the region introduced newer, more popular fresh market varieties. No county level production statistics on tree fruits are available.

Vegetables

There are no statistics or reliable way to estimate the acreage or number of farms that produce vegetables in the county. Most farms that raise vegetables are diversified in the number of crops produced and they vary the mix of crops year–to-year depending on perceived consumer demand. About 10 years ago there were larger farms with several hundred acres devoted to selected vegetable crops. Virtually all of those farms have ceased production. The 2002 Ag Census shows 46 farms with 622 acres producing vegetables. Only about one third of the acreage was indicated as irrigated.

[6] Growers who produce less than 6,000 pounds of raspberries are exempt from paying assessments and reporting to the Washington Red Raspberry Commission.

Presently there are a few farms that have perhaps in the range of 10 to 75 acres in vegetable crops Most or all are selling fresh vegetables by direct market means or selling to other direct marketing retail outlets or farmers markets Clark County farmers tend to grow the high gross revenue vegetable crops including pumpkins, squash, sweet corn, cucumbers, and tomatoes Crops such as lettuce, cabbage, carrots and potatoes are grown in very small quantities by the remaining local vegetable farmers It should be noted that a small number of farmers who sell vegetables are also diversified and many grow ten or more crops, including berries and fruits Some have found success by directly selling their own and other farmer's crops through their own farm stores, at local farmer markets or to consumers who subscribe to purchase the crops Farmers who run their own direct retail stores have also branched out to sell value added products such as apple cider, jams, and other foods or ornamental plants A further source of revenues for some retail farm markets include such agri-tourism attractions as corn mazes, petting zoos, pumpkin launches and hay rides

Pumpkins are a favorite of local consumers.

Christmas Tree Farms

Christmas trees are grown in many locations and on a variety of different sized parcels in the county Christmas tree production has been one of the larger segments of agricultural land use in the county in recent years and a number of Clark County growers have been interviewed for this analysis

Many rural landowners investigate growing Christmas trees but the number of growers that have entered this business in recent years is probably in the range of 20 to 30 There is an increasing number of "choose and cut" growers who sell trees at their farm Most of these growers are in the smaller size grower group (under 20 acres) and they can be identified by the listings in the local newspapers The 2006 newspaper listings of growers suggest that Clark County has in the range of 25 to 35 farms that are directly selling their trees There are undoubtedly more small growers that are hard to document because they operate more informal small businesses that sell small quantities of trees to other growers or wholesalers

Most of the growers who were contacted believe that there are some new growers entering this business However finding quality land for new operations is a challenge One very knowledgeable and well-established grower said they carefully and comprehensively surveyed the entire county two years ago for new land to plant a commercial stand of Christmas trees (particularly Noble Firs) They did not find any high quality sites, which would include parcels of 20-30 acres in size, have adequate soils for good water drainage, have the proper wind conditions and related micro climatic factors for ideal tree production Good drainage is particularly important for Noble Firs, which is the species in greatest demand, but other tree species also benefit from proper soil drainage It is likely that most of the new future plantings

will come on the small acreages adjoining the owner's residence or perhaps on leased land or land on which other land use is anticipated in 10 plus years in the future These considerations are not related to the primary characteristics for the land for tree production and compound the difficulty for the county to foresee where new Christmas tree production may locate

At the present time most observers think the Christmas tree industry in the Northwest is in a down cycle Growers report that wholesale and retail Christmas prices were "soft or flat" in 2006 and the outlook is the same in 2007 One large grower has already contracted for 2007 sales of Noble Firs with some long standing customers at prices three to four percent lower than they received in 2006

The plantings data for Oregon is the only published data to assess the near term economic conditions There is no comparable plantings data for Washington, and Oregon is by far a much larger production area than Washington During the period 1999-2006, Oregon had annual plantings of 8 0 million or more trees The peak planting year was 2001, at 10 4 million trees In 2005 Oregon's total tree sales were 6 9 million The plantings in 1999 are now reaching harvest age While there has been growth in sales in 2005 over reported levels in 2001 and 2003, the data suggests that the larger and firmly established commercial wholesale growers will likely be very competitive in the markets as increased supplies reach harvest age The most vulnerable growers will be first time sellers who must break in as unknown suppliers New sellers, especially in wholesale markets, must usually offer lower prices to establish themselves, particularly in down market cycles Retail "choose and cut" growers will also see more downward price pressure

The technical knowledge needed to manage an efficient and profitable Christmas tree farm is significant and this affects the ability of new growers to successfully enter the business While WSU Extension is working closely with growers and offering short courses and management advice, new growers commonly underestimate the importance of selecting the proper sites and applying needed cultural practices to assure a crop of high quality, disease-free trees The need for close field monitoring and applications of herbicides, fungicides, insecticides and fertilizer also complicate the management of tree farms when they are located near residential properties, other built environments and waterways

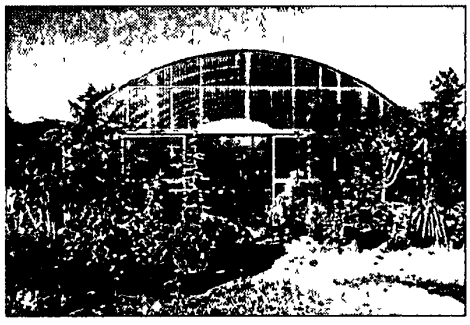
Marketing and farm location are crucial for smaller farms that want to sell by the "choose and cut" direct sale retail method Small acreage growers rarely find it cost effective to invest in the commercial tree baling and loading facilities needed to fill semi-trucks destined for wholesale markets As Clark County growers have expanded their wholesale and retail channels, new small growers must find their niche in this business in order to thrive Choose and cut sales may seem the easiest and more profitable marketing approach, but success is often highly dependent on farm locations that are easy to find and the growers must offer the buying experience and suitable quality that customers are seeking

Clark County is not among western Washington's top five largest counties for Christmas tree production It is most likely that total production will plateau and then decline in the years ahead There are several reasons for this Development patterns in the county have already limited the availability of land parcels of 20 acres or more that are well suited for Christmas

trees Second, high current land prices preclude growers from establishing new long-term operations as sites for Christmas tree production Planting Christmas trees on open land can be a means for saving property taxes as land owners await further land development Finally, most Clark County growers are generally in the age range of 50 years and older There are few next generation land buyers who can follow by managing commercial size properties and covering the many years of negative cash flow

Given all of the factors discussed above, it may likely be difficult for the county land use planners to predict where new Christmas tree farms may locate There will undoubtedly be some growers who will overcome the production and marketing barriers to establish themselves in Clark County However, few are likely to locate on parcels over 20 acres and they will not fully replace the expected loss of existing Christmas tree farms which go out as new development extends from urban areas to non-urban areas

Ornamental Plant Nurseries



Local retail sales are the main market outlet for Clark County plant growers

Ornamental plant nurseries cover many types of growing operations, from greenhouses to container nurseries to retail garden centers This has been the more growth-oriented side of agriculture in Clark County and it has been propelled in large part by the growth in new housing and the general trend toward home and commercial site beautification A good resource for showing the diversity and extent of nurseries in the county is found in a publication prepared annually for the membership of the Specialty Nursery Association of Clark County (SNACC) [7] The SNACC membership includes nurseries that sell annual and perennial plants, shade trees, fruit trees, other trees, shrubs, herbs, produce (food plant starts), berry plants, ground covers and more There are both wholesale and retail nurseries listed A total of about 20 nurseries in Clark County are listed in their latest guide, and some of the major nurseries in the county are not members of SNACC

The 2002 Ag Census shows 140 farms within the category of nursery, greenhouse, floriculture, mushrooms, sod, and vegetable seeds in the county The census data also shows 1 528 million square feet under glass or other protection and 642 acres in open field production

To remain in business the independent garden centers and the smaller nurseries that supply the independent garden centers must effectively compete against the "big box" chain stores like Wal-Mart, Lowes and Home Depot In Clark County, the big box chains have an increasing presence and are supplying a large share of the total market Meanwhile there are independent retail garden centers that are succeeding and some are expanding Charles Brun, Clark County Extension horticultural specialist, has identified the key strategy for the nurseries and

[7] See 2006 Specialty Nursery Guide, by the Specialty Nursery Association of Clark County

independent garden centers: grow specialty plant materials outside of the mainstream plant groups which the large retailers feature. Some growers and retailers are building profitable niches. [See http://gardencenternursery.wsu.edu/marketing/IndependentsCompete.htm.] The independent nurseries need strong business skills to complement production know-how.

The Willamette Valley of Oregon is a very large nursery production area and Clark County retail garden centers generally look there first for sourcing most plants. Many independents are members of the Northwest Nursery Buyers Association and the NNBA reports that Clark County has no wholesale growers who are on the association's approved vendor list.

Because of the future growth in Clark County, there will be opportunities for expansion by local nurseries. From a land use perspective, it is important to remember that plant nurseries are land intensive. In other words, 500 to 1,000 acres of open field and greenhouse production for the entire county is a very significant amount of land for these businesses to produce plant materials. Based on discussions with nursery growers, wholesale nursery businesses are often in the five to 20 acre size range and some are much smaller than five acres. Retail nurseries that "grow out" some plant materials are usually on three to five acres. A wholesale growing nursery with 15 to 20 acres is considered a large operation in Clark County.

The location of a grower's nursery that relies on at least some retail sales generally needs easy customer access. It is less difficult for nurseries to operate near a residential population than almost any other type of agricultural enterprise. The soils of nurseries are often highly amended, unless the operation has extensive in-ground tree production. Often shrub and small stock plant production is in containers and the native soils are not used. For these reasons, it is very hard to pre-determine where new nurseries may locate.

Other Specialty Crops

Crops such as ginseng, golden seal and chestnuts are specialty crops produced on relatively few, small-acreage farms in Clark County. However, the successful specialized producers have refined their production techniques and found market outlets that bring them sizeable gross and net income. Strong management skill and production know-how are crucial to their success. Markets for these crops are finite and it is hard to predict the land characteristics and location where future specialty farm operations like these may be established.

Wineries and Wine Grapes

Clark County is home to three wineries that produce wine from grapes grown here. Pinot noir is the main wine grape varietal grown in the county. In addition to the three wineries, which all produce grapes, Clark County has three other wine grape growers who sell their grapes to wineries. According to one winery owner, about 75 acres in Clark County are devoted to wine grape production. Expansion is proceeding slowly with perhaps three to 10 acres being added annually in recent years.

Beef Cattle

The latest Ag Census reports that Clark County had 4,543 beef cattle and calves in 2002. Discussions with some of the livestock operators suggest that there are about four to five larger

operations that together account for several thousand head The one large commercial cattle feeding operation known to exist uses very low cost food waste from a local snack food manufacturer A few herds of 50 to 100 head are also reported The cattle sector is very restricted within Clark County because there is no low cost public land for grazing and there are no USDA inspected slaughter facilities [8] Many of the beef cattle in the county are grown non-commercially for personal beef consumption on the small rural properties Additionally some beef cattle are sold to third parties who then have the animals slaughtered by mobile meat processors This is a very small scale enterprise because re-sale of the meat is not allowed by law since the processing is not done in a USDA inspected packing plant

Cow and Goat Dairies

Historically cow dairies were a major part of Clark County agriculture The county's dairy industry has steadily declined Dairy farmers in the county indicate that there are seven remaining cow dairies It is reported by the WSU dairy specialist that in 1984, there were 84 dairies in the county [9] Dairy operators and former dairy operators state that many reasons exist for the decline First, the clear trend is for fewer and larger dairies, which have achieved economies of scale The move to larger dairies also is part of the reason milk prices are low, which pressures the smaller dairies and leads them to expand or leave the industry

The favored areas for dairy production in the Pacific Northwest are east of the Cascades in eastern Washington, eastern Oregon and in Idaho Among the reasons the industry has been re-locating to these areas relative to western Washington are less costly feed (principally alfalfa hay), lower cost land which allows the diary operators to expand their land base and herd size, better access to labor and workers who are experienced with livestock care and management, and less effort/lower cost to meet manure management standards

Clark County has at least two Grade A goat dairies, and perhaps more which may or may not be licensed Goat dairies are more specialized operations than cow dairies and can operate on a much smaller land base

Horses

Clark County has a large number of residents that own horses Feeding, boarding and other aspects of horse ownership contribute to agriculture A 2004 survey of horse owners was conducted by the Clark County Executive Horse Council (CCEHC) This analysis relied on

[8] The closest USDA inspected meat packing plant is in Cowlitz County

[9] Personal communication with Gary Fredericks, WSU Clark County dairy specialist

survey sampling which was used to project the number of horses in the county The resulting survey estimate was 35,000 horses in the county with an average of 3 9 horses per horse-owning household The analysis states that the average number of horses per household has increased slightly from 2000 to 2004, but that the number of horses per household declined significantly in the county from 1983 to 2004 The study points to long term population growth (and growth in households) as the reason that horse numbers are growing despite the lower average of horses per household from 1983 to 2004

The accuracy of the estimation of 35,000 horses is not known, although an estimate of the statistical accuracy is stated in the CCEHC report The 2002 Census of Agriculture estimates that there were 3,433 horses and ponies on 540 farms in the county This wide difference is partly due to the fact that the Ag Census is sent to persons who are identified as "agricultural producers", and it is not sent to every horse owner However, the relevant question is not the total number of horses in the county but how many properties with horses can be considered part of commercial agriculture?

Identifying and describing "commercial horse farms" is problematic Landowners with small acreage and a few horses for personal enjoyment do not constitute an agricultural enterprise Horse breeding farms with barns, pens and pasture for 10 or more brood mares and one or more standing stallions are rare in Clark County It is more common to find horse breeding operations with four to eight mares In most cases, this is a supplemental source of income or an avocation Few people make their sole or primary income from breeding, raising or buying and selling horses Some trainers have significant business and often combine training with operating boarding stables or other equine related pursuits such as judging at equestrian shows

Long-time horse industry observers say that the larger breeding farms have declined in Clark County because climate, land prices, feed costs, clustering of equine services and other factors favor their location in other more rural areas In addition, the loss of tax-advantaged treatment for horse breeding farms under federal legislation has reduced the popularity of establishing such operations

There are many types of horse boarding facilities throughout the county to serve the many horse owners here Stables may function only to house horses or they may be also feature added equestrian services such as horse training, riding instruction, and horse breeding Some horse boarding facilities have adjoining land where horses are turned out to graze or where nearby riding trails are available Other stables have very little open land since horses are primarily housed and fed in stalls with periodic exercise in arenas Many of the county's horse facilities were built in the 1970's and 1980's In older facilities there are greater maintenance costs as the buildings age Stables are generally not considered financially strong businesses so facility upgrade and renovation is an economic issue for some operators As residential development expands, some facilities are now close to urban development and are receiving odor or insect complaints from neighbors In addition, the rising land values give stable owners an incentive to close and look for less dense residential areas if they wish to remain in this business Horse enthusiasts are concerned that the loss of open space and the business pressures on stables are negatively impacting the sustainability of this sector in Clark County

The horse sector is a source of demand for agricultural crops such as hay or grain. In this regard, the horse sector contributes to agriculture and rural agricultural land use. This also adds a requirement for pasture land for commercial horse operations such as commercial horse breeding operations and for grass hay production.

Poultry and Eggs

Clark County is a significant producer of fryer chickens. The Washington Fryer Commission reports that Clark County produces 11.45 percent of the state's fryer chickens. [10] This represents an estimated production of 5.2 million birds (the 2002 Ag Census reported 4.37 million chickens). The vast majority of production is accounted for by a few large contract growers. Lewis County dominates state production but Clark and Thurston counties are tied for the second. Fryers are produced in "fryer barns" that take up little land area. Nearly all Washington fryer production is on the west side of the state, near the two major poultry processors.

There are no known major egg producers in Clark County. Some of the small scale diversified farms have laying chickens and sell eggs.

Other Livestock

Commercial production of hogs, sheep, lamas, and alpacas complete the assessment for the main types of livestock produced in Clark County. Most observers believe that these species are either in stable production or decline in Clark County. Sheep, lamas and alpacas can be used for fiber production. It is hard to predict that there is any discernible growth in textile use of fibers in the county. There is no tracking of goat production for meat, but there is a sizeable goat population (perhaps over 1,000 head) and it is mainly due to the popularity for goat meat with some ethnic groups. Meat production from hogs and sheep is minor and expansion is limited because Clark County has no USDA approved slaughter facilities.

[10] See www.cluckcluck.org.

What is Commercial Agriculture?

There are wide ranging views about what defines a commercial farmer or agricultural operator Many of the long time growers in Clark County point to the largest among them that are left in business as "the farmers" Many of the long time farmers also have the view that agriculture is gone or is just about finished here At the other end of the spectrum, some residents and small farm advocates claim that anyone that produces plants or livestock for sale, regardless of the amount of sales, are farmers

A more precise concept of who make up the commercial farming industry is important to address for both the long-term land use planning framework of the county and compliance with the GMA This is also at the crux of the discussion over how to best conserve land for agricultural production For example if the emphasis is on larger commercial farmers, then larger parcel sizes are generally more important than if the focus is on "all growers" Also ground water availability is a different issue for larger farms than for smaller scale farming

Defining commercial agricultural operations is also complicated because there are many different types of agricultural operations in the county One way to establish a definition is to view farmers as those who are able to derive a living from their agricultural business In this case, farming provides a significant source of income although not necessarily the only source of income

Using the dictionary meaning of commercial agriculture, the concept is clearly rooted in salability, profit and success of farms This requires more than mere physical production There is stability and on-going enterprise These concepts have to do with the ability to produce, sell and earn a financial return that compensates the business owner for the expense and risk of their business While some do not want to see farming reduced to financial terms, it appears to be the principal way to narrow the scope of commercial agriculture to a concept that allows the county to best identify and plan for land resource protection that will support successful agricultural enterprises in the future

The concept of a living wage is one measure of the minimum income necessary to support a family and cover its necessary household expenses These expenses include food, child care, medical, housing, transportation, and other items The amount of household expenses required varies according to regional cost differences, such as housing costs, and the size of the family Data for 2004 estimates that the living wage for one adult in Clark County is $16,079 and increases to $42,732 for a family of two adults and two children [11]

If farmers earned a living wage this would more likely assure Clark County of having a sustained agriculture industry with more full time producers Lower income levels are sufficient to keep some farmers in business, particularly very small scale part-time farmers Regardless of what income threshold is chosen, a positive net income that is increasing over time is necessary in order to cover the costs and risks inherent in production agriculture The absence of growth in net income has led to the long, downward slide in this industry in Clark County

[11] The living wage estimates are from the Poverty in America website at www povertyinamerica psu edu

Changing Conditions for Agricultural Production

One fundamental issue from the land use perspective of Clark County agriculture is how changing conditions have impacted the land required by the county's agricultural producers. Some observations are warranted.

1. Singular consideration of physical condition, particularly soil, does not indicate the "best" farmland. There is an important interaction between physical and economic factors. For example, the peat soils in Clark County have traditionally been considered as some of the most productive soils. These soils produce excellent quality and yields of cole crops such as cabbage, broccoli and cauliflower. However, the farm gate and retail prices for these vegetable crops are very low and these crops are no longer economically viable to produce in the county. In this case, farmers are not looking to operate land that in a purely physical sense is the most productive.
2. Air drainage and heat units are usually very important factors for determining where the best agricultural lands are located. The highest yields are found on land that receives the most exposure to sunlight and where air moves freely, preventing pockets of colder air from being trapped close to the ground. However, cooler locations are sometimes desirable for crops. Some tree species for Christmas tree production for example, do better on somewhat higher elevations in cooler climatic conditions.
3. The level of soil wetness on some former agricultural lands and the location of wet soils are likely to have changed over time due from the change in drainage caused by built-up land areas. This may have contributed to important changed conditions for agricultural land use when comparing 1950 conditions to present. This also may render some of the soil survey analyses as inaccurate under present conditions.
4. Soil amendment such as adding organic matter to reduce the clay layer of heavy soil is not practical when large acreages are farmed. However, on small scale farm operations, this is more feasible. As Clark County transitions to smaller farm acreages, this also reduces the singular importance of soils to the decision over where to locate a farm operation.
5. Because land has become so expensive, agricultural producers often rent or lease land, including land adjoining land to their base operations. Beginning farmers have also traditionally rented land to get into business with less capital outlay. However in the current land market finding land to rent or lease is more difficult and this is not satisfactory for establishing long term commercially stable agricultural production.

Financing Farms

One of the notable findings of this analysis is that there are very few agricultural operations financed by commercial or government lenders. Information provided by the Farm Service Agency (FSA) of the U.S. Department of Agriculture shows that they have had no new borrowers in Clark County in the last 10 years that have purchased 10 or more acres under the

agency's farm loan programs [12] This is significant because the FSA is the government lender to farm borrowers who do not qualify for standard commercial loans If FSA is not making these loans, it is also very doubtful that commercial lenders have borrowers who have purchased land and other capital assets In fact, contacts with several commercial banks identified only one bank which said they had made loans to a few nurseries in recent years

Discussions with farmers and other agricultural operators in the county reveal that many newer operators have used their own capital to buy land or they have combined a small-scale farm enterprise with the purchase of their rural residence Others have enlarged their agricultural enterprise with leased land This situation has led to a low base level of new agricultural enterprise development which cannot fully replace the larger, agricultural operations such as dairies and berry farms, which are going out of business

Local Marketing

One of the WAC criteria to assess the long term commercial significance of agriculture is the criteria of "proximity to markets" Often this is assumed to mean proximity to population centers For newer farmers in Clark County, reaching local markets is at least one main factor in their marketing program They may sell at farmers markets in the area, set up roadside stands, operate a CSA (Community Supported Agriculture) farm with subscribers who pay for a share of the production, or offer other forms of direct marketing channels

However the local sales approach is not uniformly adopted by Clark County farmers Local markets have not generated sufficient revenues to attract very many new farms to the county

The case of dairies illustrates the dichotomy of how and where farm products are sold Some of the few remaining dairies do sell locally to the one milk bottler in the county On the other hand, one of the largest dairies in the county is shipping their milk out of the county (and out of the Portland metropolitan area) because they realize a significant price premium In this case the higher price received justifies the added transportation cost

There are also examples of local nurseries that sell most of their specialty trees over the Internet, and they ship by express delivery Their markets are often widely dispersed geographically

Fresh fruit and vegetable producers, and Christmas tree growers are the best examples of agricultural crops that do rely primarily on local markets However the larger of the Christmas tree growers are wholesalers and their main markets are out-of-state, principally California

[12] Based on letter with attachments dated February 14, 2007 from Jeffrey Peterson, Farm Loan Officer, Farm Services Agency, USDA, Chehalis, Washington office

Review of the Recent Supreme Court Ruling

The Washington Supreme Court recently ruled on Lewis County's procedures to designate agricultural lands for conservation under the GMA [13] The Court has clearly stated that counties have discretion to designate lands as agricultural land if they follow the requirements of GMA The court also stated that the designation of agricultural land need not be solely based on the physical character of the land The Supreme Count has further ruled that agricultural lands are those lands that 1) are devoted to agriculture, 2) have the capability for production and 3) have long-term commercial significance for agricultural production

Of these three requirements, long-term commercial significance for agricultural production is the most difficult criteria to evaluate because this is forward looking and lands that otherwise are agricultural can still be de-designated if they are subject to development pressure or they have some change in growing capacity or productivity that affects their ability to contribute significantly to agricultural output

The Supreme Court acknowledges that counties can also use criteria to designate agricultural lands of long-term commercial significance that are based on regulations promulgated by the Washington Department of Community, Trade, and Economic Development There are 10 factors CTED has delineated as guidelines for determining the intensity of development pressure on agricultural lands [14]

The Supreme Court also ruled that counties can use additional criteria beyond any that are specified in the GMA or CTED regulations for designation of agricultural lands as long they are consistent with the intent and requirements of GMA

In Lewis County's case, they advanced the argument that they were establishing the total acreage of agricultural land for designation based on an "agricultural industry needs assessment" Preparing proper needs assessment that can pass the GMA requires extensive data requirements and this procedure is generally subjective It is not recommended that Clark County adopt this as a point of analysis to support the total land area for designation Rather, it is prudent to re-evaluate all of the county lands and apply a consistent set of agricultural land designation criteria to establish which lands pass the test of having characteristics of long-term agricultural production capacity

The original tests for what constitutes agricultural lands is defined in GMA and is assisted by the 10 factors delineated by CTED The latest Supreme Court ruling provides ample guidance for Clark County to establish its own set of agricultural land designation criteria The Board of Clark County Commissioners to date has not adopted any new criteria for designation of agricultural land in the county

[13] Washington Supreme Court, docket number 76553-7, August 10, 2006

[14] See Appendix D for the guidelines from CTED

Agricultural Land in Clark County

This section reports on the type and location of agricultural land in the county, with particular emphasis on the expansion areas proposed as Alternatives 2 and 3 for the Comprehensive Plan, which includes land in the Preferred Alternative

The latest Agriculture Census estimates that there was 70,694 acres of land in farms in 2002 This census also estimates that 22,896 acres were in harvested cropland, and 4,752 acres were irrigated Some people believe only the more intensive farmed land is agricultural while others are inclined to count any agricultural related use in the total

Using the most recent Clark County current use tax assessment data as a guide gives a very different estimate of the county's agricultural land area The latest estimate from Clark County is that there are 48,457 acres enrolled in either Farm or Agricultural use designation Note that this estimate includes parcels which have a portion of the land area enrolled in Open Space or Forest or Timber tax designation as well as Farm and Agricultural, so there is potential for land to be counted as Farm or Agriculture when it is in fact in one of these other classifications

These differences in tallying agricultural acreage point out why there can be discrepancies in discussions about the amount of agricultural land that is available or used for agricultural purposes The types of agricultural activity and the definition of what constitutes commercial farming have much to do with determining the size of the land base that exists in the county

Land in the Expansion Areas that are in the Agriculture Zone at the Current UGA Boundaries

Data on the extent of lands that adjoin the current UGAs and are in the expansion areas is given in Table 4 This data shows the amount of land in parcels which are in either Alternative 2 or 3 and are in the Ag-20 zone and abut the current UGA boundaries

Table 4 – Characteristics of Land in the Ag-20 Zone and in Expansion Areas that are Adjacent to the Current UGAs

Alternative	No. of Parcels	No. of Parcels with Buildings	Total Acreage	Average Acreage per Parcel
Alternative 2	73	43	1,370	18 7
Alternative 3	16	2	580	36 2

Source Clark County GIS, October 16, 2006

Agricultural Land in the Expansion Areas

Clark County GIS provided photo interpretation of aerial photos taken in 2005 in the Alternative 2 and 3 expansion areas. Twelve types of "open" land uses were classified for the land within each alternative. Table 5 shows the resulting acreages by type of land use for Alternative 2, and Table 6 shows this data for Alternative 3.

Table 5 - Type of Land Use in the Alternative 2 Expansion Area

Land Use	Number of Parcels	Acreage
Brush	9	19.9
Built	274	458.3
Christmas Trees	7	68.2
Cultivation	1	0.9
Forested or Woodland	120	836.9
Golf Course	5	138.2
Hay	116	1,638.8
Nursery	2	6.4
Open Space	80	241.3
Pasture	89	929.5
Perennial Crops	13	165.4
Water/Wetland	1	19.3
Total All Uses	717	4,523.1
Total Ag Uses	228	2,809.2

Note: Perennial crops include orchards, vineyards, or other long term plantings.
Source: Clark County GIS, October 9, 2006.

Table 6 - Type of Land Use in the Alternative 3 Expansion Area		
Land Use	**Number of Parcels**	**Acreage**
Brush	23	85.7
Built	131	177.2
Christmas Trees	2	3.3
Cultivation	0	0
Forested or Woodland	135	659.2
Golf Course	0	0
Hay	88	978.2
Nursery	6	20.5
Open Space	53	149.9
Pasture	79	973.1
Perennial Crops	23	216.9
Water/Wetland	17	71.5
Total All Uses	557	3,355.5
Total Ag Uses	198	2,192.0

Note: Perennial crops include orchards, vineyards, or other long term plantings.
Source: Clark County GIS, October 9, 2006.

Using the 2002 Agricultural Census as a guide, if there was 70,000 acres of agricultural land in Clark County in 2002, currently the county would have approximately 65,000 to 68,000 acres in agricultural use. Using the mid-point of 66,500 acres as the current total agricultural land base, the agricultural land within the expansion areas of Alternative 2 account for about 4.0 percent of the county's total agricultural land. Similarly, the Alternative 3 agricultural land area is about 3.3 percent of the county's total agricultural land. [15] Note that this is only based on land use calculations; this is not a calculation of lands used for commercial agricultural production.

Farms within the Cities and in Expansion Areas

Apart from the Ag Census, a different way to look at agriculture in the expansion areas is to analyze this in terms of the individual farms that have been identified in the Clark County database and assess their location relative to the Preferred Alternative. Figure 8 and the maps in Appendix A show the location of farms in relation to the existing city boundaries, the 2004 adopted UGB and the proposed Preferred Alternative UGA boundaries.

[15] The agricultural land in the expansion area is considered to include land in Christmas trees, cultivation, hay, nursery, pasture and perennial crops.

There are 51 separate parcel ownerships associated with the farms identified in the Clark County database. Twenty parcels comprising about 153 acres are currently within city boundaries of the cities. Another 17 parcels with 120 acres are within the 2004 adopted UGB and 14 parcels with 594 acres are within Preferred Alternative UGA (see Figure 8 and Table 7). In total there are 51 parcels with 868 acres that are currently within city boundaries or inside the 2004 UGA boundaries or within the Preferred Alternative boundaries.

Table 7 – Number of Parcels and Acres in Identified Farms By Jurisdiction

Jurisdiction	Location	Number of Parcels	Acres
Battle Ground	Within City	0	0.0
	In Adopted UGA	3	8.7
	In Preferred UGA	0	0.0
Camas	Within City	2	6.5
	In Adopted UGA	0	0.0
	In Preferred UGA	1	18.5
La Center	Within City	0	0.0
	In Adopted UGA	1	25.4
	In Preferred UGA	0	0.0
Ridgefield	Within City	1	1.5
	In Adopted UGA	2	32.9
	In Preferred UGA	5	217.1
Vancouver	Within City	17	144.9
	In Adopted UGA	11	53.3
	In Preferred UGA	7	335.1
Washougal	Within City	0	0.0
	In Adopted UGA	0	0.0
	In Preferred UGA	1	23.6
Totals	Within City	20	152.9
	In Adopted UGA	17	120.4
	In Preferred UGA	14	594.3
Grand Total		51	867.6

Source: Clark County GIS

Another key is the comparison of farm acreage within the Preferred Alternative area to the total farm acreage in the county that is associated with the 145 farms The 868 acres within the cities' incorporated boundaries, adopted UGAs, and the Preferred Alternative is about 28 percent of the 3,115 acres in all 145 farms

Appendix A shows a series of maps at a large scale showing the city boundaries, the adopted UGA boundary (2004) the Preferred Alternative boundary for each city, zoning for land generally outside the city limits, and the location of identified farms These maps show several farms are within existing city limits as well as the adopted UGA and the Preferred Alternative UGA They also show the location of the farms which are in close proximity to the Preferred Alternative UGA

Agricultural Current Use Tax Land in Expansion Areas

Within Alternative 2 expansion areas, there are 108 parcels that are in current use tax designation and have been identified through the 2005 aerial photos as having agricultural use These lands have not been studied to determine their degree of use for commercial agricultural production One other parcel was planted to Christmas trees Three parcels were indicated to have cultivation (i e the land was plowed or disked for crop planting) Three were primarily wooded but also had agricultural use indicated Twenty-two parcels had pasture as the primary use, 27 had grass hay production as the primary use and 52 others were "fields" whose specific use was not determined from aerial photo interpretation

Within Alternative 3 expansion areas, there are 74 parcels that are in current use tax designation and appear to have some degree of agricultural use or use potential Two of the parcels were cultivated and probably were being prepared to plant some type of crops Nine have primarily wooded cover but also have some agricultural use, 12 are primarily in pasture, 22 are in hay production, and 29 are primarily "fields" with unknown specific agricultural use

Location of Land in Current Use Taxation

There is an extensive amount of land in farm and agricultural designation for current use taxation in Clark County These lands have been mapped in GIS and they are shown in Figure 10 The lands in either farm or agricultural designation are indicated as either coming into the program prior to 1994 or in 1994 or after The year 1994 was chosen because this was the year that the agricultural land zone from GMA was first established in Clark County and it serves as a useful milestone year to measure the trend in lands coming into the program Figure 10 shows that the recently added current use lands are broadly dispersed in the county Most of the current use farm and agriculture lands that are within the boundaries of the Preferred Alternative entered the current use program prior to 1994

This data includes only parcels that are still active in the current use program Lands that have been withdrawn are not tracked in the GIS system so no data is presented on the acreage that has been withdrawn from current use for farm or agriculture

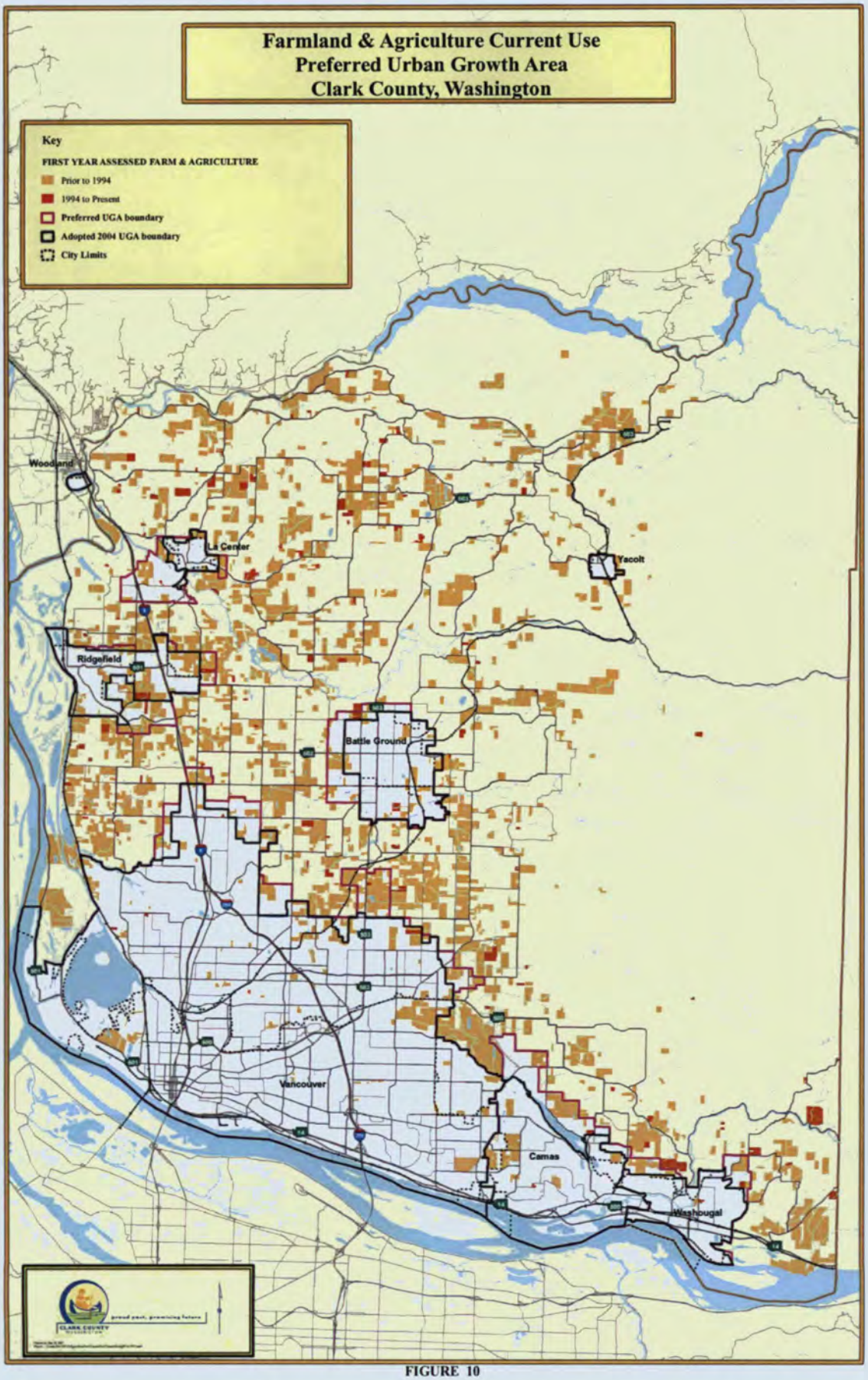

Farmland & Agriculture Current Use
Preferred Urban Growth Area
Clark County, Washington
Key
FIRST YEAR ASSESSED FARM & AGRICULTURE
Prior to 1994
1994 to Present
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
Woodland
La Center
Yacolt
Ridgefield
Battle Ground
Vancouver
Camas
Washougal

FIGURE 10

From early 1970's up to 1994, 46,309 acres were classified farm or agricultural and remain in the program From 1994 to 2006 there has been 2,148 acres added to the farm and agriculture designation and remain in the program Table 8 provides a further breakdown of the acreage and number of parcels added to this land designation since 1994 Table 8 shows a clear trend that property owners are placing fewer acres in farm or agriculture designation over time In the 1995 to 2005 period, the greatest amount of land placed in the program was 546 acres in 1996-1997 Since then the next highest two year period was 2000-2001 with 318 acres added The number of parcels placed in the program is also trending downward Only partial year data is available for 2006

Table 8 – Land Added in Farm and Agriculture Current Use Designation in Clark County, 1994 to 2006

Years	Acres Added	Number of Parcels	Average Parcel Size
1994-1995	532 01	43	12 4
1996-1997	545 37	61	8 9
1998-1999	283 27	23	12 3
2000-2001	318 39	32	9 9
2002-2003	187 81	18	10 4
2004-2005	257 64	19	13 6
2006	24 05	7	3 4
Totals	2,148 54	203	10 6

Note This data includes only land presently in the current use program Parcels withdrawn from current use are not included
Source Clark County GIS

Location of Agricultural Land in Current Use Taxation Relative to Agriculture Zoning

The county's GIS program was used to determine the extent and location of land in Farm and Agricultural land classification and this was compared to the agricultural land zone (Ag-20) There are a total of 956 parcels comprising 16,569 acres in Clark County's current use program for Farm and Agricultural lands [16] Approximately 6,700 acres in 328 parcels which are in Farm and Agricultural land classification are also in the Agriculture 20 zone This represents about 40 percent of the total land in Farm and Agricultural land classification in Clark County The remaining 60 percent of land in Farm and Agriculture current use is located across other

[16] Parcels are excluded which have compensatory taxes due because the land is coming out of Farm and Agricultural Land classification Some parcels have several current use land classifications (e g Open Space, Farm and Agriculture, or Timber Land) and Designated Forest Land These parcels with multiple classifications are counted as Farm and Agricultural land even if a portion is in Designated Forest Land Therefore to a small extent the data presented overstates the amount of land in Farm and Agricultural classification

land use zones. The two principal zones which include Farm and Agriculture land are the Rural five acres (R-5) zone and the Rural ten acres (R-10) zone. The R-5 zone has 341 parcels with 3,371 acres of Farm and Agriculture current use land and the R-10 zone has 137 parcels with 2,184 acres of Farm and Agriculture Land. The remaining 173 parcels with 5,377 acres are widely distributed among all of the other land use zones.

Current Contributions of Agriculture to the Economy of Clark County

This section describes the characteristics of Clark County's present agricultural economy, beginning with descriptive data on employment and agricultural businesses Analysis is then presented for how the removal of all agricultural land by expansion of UGAs under Alternatives 2 and 3 would impact related sectors such as food processing as well as the indirect and induced economic losses that affect the entire local economy Later in this report, analysis is given of changes in the county's agricultural economy from 1994 to 2004 and data is presented for agriculture's contributions relative to the total economy of Clark County

Covered Employees and Establishments

The Washington State Employment Security Department tracks the number of agricultural employees that meet unemployment insurance requirements These covered employees' can include workers on corporate farms, regular (steadily employed) workers on small farms and proprietors who choose to pay into the unemployment insurance system The Employment Security Department also tracks the number of farms reporting to the unemployment insurance system (covered employment), and the annual reported employee earnings (covered earnings) Because many farm proprietors do not opt into the unemployment insurance program and temporary workers do not meet unemployment insurance requirements, Washington State Employment Security Department employment figures under estimate the actual number of agriculture workers in Clark County However, the covered employment numbers are included to provide a minimal count of the county's agricultural workforce and farms and this gives a reasonable directional trend for employment over time

Table 9 shows covered employment data for the four-year period 2002 to 2005 In 2005 there were 454 covered employees in agriculture, with 319 working in crop production and 135 working in animal production The average crop production worker earned $15,263 (up from $11,257 in 2002), while the average animal production worker earned $23,186 The difference in earnings is probably due to the seasonal nature of crop production In 2005 there were 88 agricultural farms reporting, 64 of which were producing crops (down from 67 in 2002) and 24 were raising animals

Covered food manufacturing workers are also included in Table 9 There were 29 reporting food manufacturing farms in 2005 with 1,103 employees earning an average of $41,514 annually

Table 9 – Agricultural and Food Manufacturing, Covered Employment, Average Earnings and Reporting Establishments in Clark County, 2002-2005

	2002	2003	2004	2005
Average Agricultural Employees	**454**	**449**	**460**	**454**
Crop Production	331	333	339	319
Animal Production	123	116	121	135
Average Annual Agricultural Earnings	**$14,430**	**$14,247**	**$15,402**	**$17,619**
Crop Production	$11,257	$11,307	$12,525	$15,263
Animal Production	$22,969	$22,690	$23,465	$23,186
Agricultural Firms Reporting	**91**	**90**	**86**	**88**
Crop Production	67	67	63	64
Animal Production	24	23	23	24
Average Food Manufacturing Employees	**1,150**	**1,183**	**1,140**	**1,103**
Average Annual Food Manufacturing Earnings	**$37,817**	**$37,939**	**$42,277**	**$41,514**
Food Manufacturing Firms Reporting	**29**	**32**	**29**	**29**

Source Washington State Employment Security Dept , Covered Employment and Wage Series (ES-202)

Community Economic Impacts

In this study an "Impact Analysis for PLANing" (IMPLAN) economic impact analysis model of Clark County is utilized to determine the direct, indirect and induced impacts of the loss of agricultural acreage under Comprehensive Plan Alternatives 2 and 3 See Appendix B for a brief discussion of the impact analysis methodology

This assessment assumes that all agricultural land inside the growth management area is completely removed from production It also assumes that the diminished production is not replaced elsewhere in the county Note that this assessment also does not consider resulting economic impacts from future uses of the removed agricultural land The additional contributions to the economy of Clark County from the new land uses could be very substantial, especially if significant land area is devoted to industrial uses which bring new jobs

Several negative impacts ensue from the loss of agricultural lands that would lead to other economic losses in the county First, workers on some farmland would lose their jobs and earnings and this would mean their household consumption and expenditures would decrease in the local economy This leads to direct, indirect and induced losses of jobs and income by others in the county

A second direct impact results from the reduction in local business purchases by affected farmers Some local businesses and individuals that rely on purchases from farms would in turn terminate employees and this would ripple through the local economy with further negative impacts

The value of agricultural output that would be removed under Alternatives 2 and 3 was estimated using two steps First, Clark County GIS data was used to estimate how many acres of each type of crop would be reduced under each alternative The acres removed were converted into percentages of that crop's total acreage The percentage of acreage removed from each crop was then used to estimate the value of removed production, based on the IMPLAN crop output levels Each crop's reduced value was then entered in the IMPLAN model See Table 10 for these reductions

Table 10 – Estimate Value of Direct Agricultural Output Production Loss in Clark County Under Comp Plan Alternatives 2 & 3, 2006

Agriculture Sector	Alternative 2	Alternative 3
Vegetable & Melon Farming	-$6,120	$0
Fruit & Berry Farming	-$1,036,920	-$1,468,970
Greenhouse & Nursery Farming[1]	-$948,600	-$1,384,960
Hay & Other Crop Farming	-$739,550	-$316,950
Cattle Ranching & Dairy	-$1,084,050	-$1,192,460
Total Direct Loss	**-$3,815,240**	**-$4,363,340**

[1]Greenhouse & Nursery Farming include Christmas tree farms
Source IMPLAN model economic analysis

A summary of the total loss to Clark County's economy from the agricultural land losses is presented in Table 11 For both Alternative 2 and Alternative 3 of the Comp Plan, economic impacts are given as direct impacts, indirect and induced impacts, and total impacts Direct impacts are the value of agricultural production loss stemming directly from the reduction of agricultural acreage assuming each alternative was adopted and brought into the UGAs Indirect impacts are the losses to businesses that supply goods and services to the agricultural production industry Induced impacts are losses to businesses resulting from the lost earnings of workers in directly and indirectly affected industries Therefore induced losses reflect the diminished spending power of employees Total impacts are the sum of direct, indirect and induced losses

Each row in Table 11 shows the means through which the county is economically affected. Output is the total production value lost for all industries under the scenarios. Other property income is the loss of corporate profits, and the loss from interest, rents, dividends and other non-labor income sources. Indirect business taxes are excise and sales taxes paid by individuals to business during their everyday transactions. Negative indirect business tax figures indicate a loss of government revenue. Labor income is the earnings and benefits received by employees, including self-employed workers. The employment figure is the loss of full and part-time jobs in the county, including self-employed workers.

Table 11 – Summary of Clark County's Total Economic Impact Due Solely to Loss of Agricultural Acreage Under Comp Plan Alternatives 2 & 3, 2006

	Comp Plan Alternative 2			Comp Plan Alternative 3		
	Direct Impact	Indirect & Induced	Total Impact	Direct Impact	Indirect & Induced	Total Impact
Output	-$3,815,240	-$1,537,668	-$5,352,908	-$4,363,340	-$1,791,580	-$6,154,920
Other Property Income	-$876,978	-$358,171	-$1,235,149	-$960,159	-$415,239	-$1,375,398
Indirect Business Taxes	-$85,323	-$85,546	-$170,869	-$95,827	-$99,817	-$195,644
Labor Income	-$979,295	-$439,056	-$1,418,351	-$1,229,012	-$518,284	-$1,747,296
Employment	-82	-16	-98	-99	-19	-118

Source: IMPLAN using 2004 Clark County data.

A detailed estimate of the amount of tax revenue lost to the state and county from the loss of agricultural land is presented in Table 12. The total tax revenue lost under Alternative 2 is estimated to be $187,826. Over half of this loss is from sales tax loss (estimated at $95,346) and almost a fourth is from an estimated $42,719 loss of property taxes. The total tax revenue lost under Alternative 3 is estimated to be $215,204. The loss of sales tax revenue is $109,189, and the loss of property tax revenue is $48,975. Again, the reader is reminded that this analysis is not considering the contributions that other land use will add to the county economy. This is merely addressing the losses from the loss of agricultural production if agricultural land is completely removed in the two expansion areas.

Table 12 – Summary of State and Local Tax Impacts Due Solely to Loss of Clark County Agricultural Acreage Under Comp Plan Alternatives 2 & 3, 2006

State and Local Taxes	Alternative 2	Alternative 3
Sales Taxes	-$95,346	-$109,189
Property Taxes	-$42,719	-$48,975
Unemployment & Workers Comp.	-$760	-$957
Other Taxes	-$11,490	-$13,209
Motor Vehicle License	-$2,515	-$3,012
Fees, Fines and Donations	-$10,941	-$13,071
Dividends	-$24,055	-$26,791
Total State & Local Taxes	**-$187,826**	**-$215,204**

Source: IMPLAN using 2004 Clark County data.

Agriculture and the Clark County Economy – Changes from 1994 to 2004

Agriculture's changing economic relation to the rest of Clark County's economy is best viewed relative to changes happening in the entire county economy Descriptive IMPLAN models of the county were created for 1994 and 2004 to assess these changes The resulting aggregated industrial tables are presented in Appendix C, and the following descriptions of Clark County's economy closely follow Tables C-1 and C-2 presented in the Appendix Dollar figures are in 1994 and 2004 dollars respectively, and have not been adjusted for inflation These tables were created using different sectoring schemes making direct comparison of individual sectors difficult A brief explanation of this is given at the bottom of Appendix C

Agricultural Sector Changes

Clark County grew rapidly in the period from 1994 to 2004, both in population and in the size of its economy Although population increased nearly 40 percent, the local economy was able to expand to meet the demands of that growth The county's total industrial output nearly doubled in this period from just over $11 billion in 1994 to nearly $20 3 billion in 2004 Labor income also nearly doubled from $3 6 billion in 1994 to $6 8 billion in 2004 Other value added, which includes corporate and property income as well as taxes, increased from $2 4 billion in 1994 to $11 2 billion in 2004

The agricultural industry in Clark County has faced tremendous pressure from encroaching development and rising land costs in the last decade These pressures have lead to an overall loss of farm production In 1994, Clark County's total agricultural output was nearly $93 million, or 0 8 percent of total county output By 2004, Clark County's total agricultural output had shrunk to $83 6 million, which by now had become only 0 4 percent of Clark County's total output Labor income, which includes wages and benefits, declined from about $34 million in 1994 to $21 million in 2004, a decline of 38 percent Other value added however, which includes corporate profits, property income and indirect business taxes, increased over the same period from $25 million in 1994 to $40 7 million in 2004

The crop production sector of agriculture was affected the most from agricultural land being taken out of production Total crop production was $52 million in 1994, and the crop sectors employed an estimated 1,286 people By 2004, total crop production was less than half that at $20 7 million, and now employed just 380 people Some of this loss is due to the move of some traditional crop production into the greenhouse and nursery sector, which grew significantly over the decade The greenhouse and nursery sector, which includes Christmas tree farms, increased output between 1994 and 2004 from about $5 5 million to nearly $19 million That growth caused an estimated 415 increase in the number of greenhouse and nursery jobs The growth of greenhouses and nurseries is an example of a growing agricultural sector in Clark County

The beef and dairy cattle sector data presents an interesting contradiction that is most likely due to changes in the nature of cattle herds in the county Cattle output fell from $25 6 million in 1994 to $21 6 million in 2004 At the same time, labor income decreased from almost $12 million in 1994 to only $1 million in 2004, yet employment rose from 270 in 1994 to 499 in 2004 The loss of labor income can be attributed mostly to proprietors, who lost 99 percent of their share of labor income between 1994 and 2004 Hired employee earnings in this sector decreased 49 percent over the same time period The decreased proprietor income coupled with high employment level in the beef and dairy cattle sector suggests that a larger percentage of the county's cattle are being raised on small farms now, instead of in commercial sized herds A theoretical example of a small cattle farm is a farmer who raises two steers, slaughters one for the household's consumption and sells the other This farmer is counted as a cattle sector proprietor employee, and yet has little or no income to show for it

The poultry and egg production sector grew from an output of almost $5 million in 1994 to nearly $15 million in 2004 The sector's employment grew as well, from 32 jobs in 1994 to 82 jobs in 2004 This sector, along with the greenhouse and nursery sector are the only agricultural sectors that have been able to significantly increase their production value over the last decade

Other animal production increased from almost $2 5 million in 1994 to $4 million in 2004 There were an estimated 127 employees in this sector in 1994 and 307 employees in 2004 Other animal production includes pigs, sheep, goats, llamas, horses, rabbits and any other animal produced in the county This sector may see growth if niche animal production in the county continues to grow

The agriculture and forestry services sector is important to note This sector includes horse stables, another business that may be directly affected by the removal of agricultural land Unfortunately, this sector also includes logging which dominates the sector, so the change in commercial value of horse stables in the county is impossible to separate here However, the agriculture and forestry services sector is included when reporting the agriculture industry output, employment, labor income and other value added totals

Another industry that is often considered as part of agriculture's industrial complex is food manufacturing Clark County's food and beverage manufacturing industry grew at a faster rate than Clark County's economy as a whole between 1994 and 2004 In 1994 the food manufacturing sectors produced $308 million worth of food and beverages, almost 2 8 percent of the county's entire economy By 2004 the industry had more than doubled its output to $679 million, or 3 3 percent of the county's economy Food manufacturing is not included when reporting agricultural industry totals

Tables 13 and 14 provide more detail about specific Clark County crops and their economic contributions to the county Table 13 shows detailed crop values for output, employment and labor compensation in 2004, and Table 14 shows the same for 1994 Once again due to changes in industrial classification, not all sectors are directly comparable

Table 13 – Economic Contributions of Agriculture in Clark County, 2004

Agricultural Sector	Industry Output (1,000s)	Total Employment	Labor Income (1,000s)
Grain Farming	$244	17	$45
Vegetable & Melon Farming	$1,223	19	$382
Fruit & Berry Farming	$8,641	187	$2,315
Hay & Other Crop Farming	$10,565	157	$2,323
Greenhouse & Nursery Production	$18,972	511	$9,728
Cattle Ranching & Dairy	$21,681	499	$1,011
Poultry & Egg Production	$14,767	82	$2,265
All Other Animal Production	$4,039	307	$365
Totals	**$80,132**	**1,779**	**$18,434**

Source IMPLAN and BEA Regional Economic Information System (Table CA25) using 2004 Clark County data

Table 14 – Economic Contributions of Agriculture in Clark County, 1994

Agricultural Sector	Industry Output (1,000s)	Total Employment	Labor Income (1,000s)
Food Grains	$123	4	$50
Feed Grains	$454	9	$184
Vegetable & Farming	$4,659	52	$2,084
Tree Nut Farming	$199	3	$87
Fruit & Berry Farming	$41,885	886	$11,673
Miscellaneous Crops	$19	1	$7
Grass Seeds	$168	19	$33
Hay and Pasture	$4,950	312	$1,707
Greenhouse and Nursery Products	$5,469	96	$2,758
Cattle Ranching & Dairy	$25,585	270	$11,910
Poultry & Egg Production	$4,949	32	$1,264
All Other Animal Production	$2,449	127	$931
Totals	**$90,909**	**1,811**	**$32,688**

Source IMPLAN and BEA Regional Economic Information System (Table CA25) using 1994 Clark County data

The Food Manufacturing Industry

With the notable exception of a few sectors, the food manufacturing industry in Clark County purchases very little from local agricultural producers. Consequently, local agriculture benefits very little from the presence of the county's larger food manufacturing businesses. This divide between local agricultural production and local food manufacturing has increased over the past ten years.

Tables 15 and 16 show the food manufacturing sectors output for 1994 and 2004. The far right column shows the value of Clark County agriculture that is purchased by the manufacturing sectors. Once again, due to industry reclassification in 2001, the sectors may not be directly comparable.

Table 15 – Local Agricultural Contributions to Food Manufacturing Sectors, Clark County, 2004 (1,000s)

Food Manufacturing Sector	Sector Output (Sales)	Local Agricultural Inputs Supply
Fluid milk manufacturing	$55,355	$15,070
Animal, except poultry, slaughtering	$10,474	$3,910
Other snack food manufacturing	$394,778	$2,910
Ice cream and frozen dessert manufacturing	$29,618	$920
Meat processed from carcasses	$8,199	$550
All other food manufacturing	$2,938	$390
Fruit and vegetable canning and drying	$15,496	$340
Wineries	$5,266	$230
Poultry processing	$452	$190
Malt manufacturing	$138,663	$120
Coffee and tea manufacturing	$464	$50
Fats and oils refining and blending	$1,753	$40
Seafood product preparation and packaging	$1,605	$40
Bread and bakery product, except frozen	$9,297	$20
Other animal food manufacturing	$4,547	< $10
Mixes and dough made from purchased flour	$258	< $10
Totals	**$679,163**	**$24,780**

Source: IMPLAN using 2004 Clark County data.

Table 16 – Local Agricultural Contributions to Food Manufacturing Sectors, Clark County, 1994 (1,000s)

Food Manufacturing Sector	Sector Output (Sales)	Local Agricultural Inputs Supply
Malt	$61,609	$1,810
Canned Fruits and Vegetables	$21,317	$1,410
Meat Packing Plants	$2,828	$1,100
Potato Chips & Similar Snacks	$170,059	$1,100
Fluid Milk	$24,518	$370
Frozen Fruits, Juices and Vegetables	$915	$80
Wines, Brandy, and Brandy Spirits	$960	$80
Sausages and Other Prepared Meats	$863	$20
Ice Cream and Frozen Desserts	$8,032	$20
Other Prepared Feeds	$2,192	$20
Blended and Prepared Flour	$856	< $10
Bread, Cake, and Related Products	$541	< $10
Cookies and Crackers	$7,541	< $10
Confectionery Products	$380	< $10
Chocolate and Cocoa Products	$1,977	< $10
Animal and Marine Fats and Oils	$693	< $10
Malt Beverages	$2,505	< $10
Other Food Preparations	$376	< $10
Totals	**$308,162**	**$6,010**

Source: IMPLAN using 1994 Clark County data.

The largest purchaser of local farm production in 2004 was the fluid milk industry, which purchased about $15 million worth of raw milk from the dairy sector. This includes the value of raw milk produced at integrated dairies that produce raw milk and bottle it themselves. The animal slaughtering sector was also a large purchaser of local farm production, utilizing $3.9 million worth of local livestock. Custom slaughtering of privately raised livestock is included in this sector in 2004 and listed in Table 14, but is not included in meat packing plants sector in Table 15. Therefore, the value of farm grown livestock slaughtered in the county is underrepresented in the 1994 table. Another food manufacturing sector worth mentioning is canned fruits and vegetables which purchased $1.4 million worth of local farm goods in 1994, but only $340,000 in 2004. Discussions with local farmers reveal that this reduction from lost

Clark County fruit production that has been replaced with fruit procured from outside the county.

The dominating manufactured products in both 1994 and 2004 are snack chips and malt. These two sectors are responsible for over 75 percent of Clark County's manufactured food sales. The two main crop inputs needed for these products are processing potatoes and malting barley. Neither of these crops is commercially grown in Clark County. Therefore both of these processing sectors rely heavily on bringing in these raw product ingredients from outside the county. The effect of using imported crops means that, although the snack chip and malt manufacturing businesses are major employers and contributors to the local economy, they do little to directly support the county's agricultural industry.

Conclusions

In the first half of the twentieth Century, Clark County had a vibrant farm economy. For at least the last 30 years agriculture in Clark County has been in a long downward trend in production and farm profits. The mix of crops and livestock produced in Clark County is still diverse, but the farms are small and there are ever declining numbers of agricultural producers.

Many factors contribute to the decline in the county's agriculture. The most basic factor is that agricultural producers in other areas grow, process and market crops and products at lower prices that meet consumer demand.

One of the key obstacles in Clark County is the limited access to high quality agricultural land at an affordable cost. This impacts both existing farmers and potential new farmers. Few new producers are replacing those who have left the industry or are preparing to leave. Newer farmers have often adopted strategies of downsizing, renting land, or operating part-time. Additionally, apart from Extension and USDA programs, Clark County has very little in the way of support for farmers to combat the many forces that continually drive farmers to quit or leave the area. All of these conditions do not bode well for a secure future in farming.

Farmers can only sustain themselves when they are profitable. To be profitable in Clark County, the costs of inputs used in the operation must be competitive, or farmers need higher prices and/or greater yields than their competitors. Demand by metropolitan area residents is growing for locally produced food and agricultural crops but this demand is not sufficiently strong to reverse the trends and allow farmers to expand with profitable operations in the county. The statistics show that Clark County farm income has continued to decline (Figures 1, 2 and 6).

There is little evidence that farmers are borrowing from either conventional or government lenders to establish new farms. Commercial credit is not practical given the immense cost of purchasing land and other assets needed to establish a farm. The logical conclusion is that new farms are commonly self-financed. This explains why so many are small scale operations on acreages of two to ten or twenty acres. These farmers often earn a small farm income that supplements their other sources of income.

Significant intervention by government is required if farms in Clark County are to be saved. Programs must be quickly put in place if public policy is to keep land and farmers in the future. One example of a program is the purchasing of development rights on selected lands considered prime for farming. Purchasing development rights to land is not sufficient to sustain farming. As crucial as it is to keep land available, the most vital need is for much higher

demand by local residents for local farm and agricultural products. Government can exert little influence over consumer purchasing patterns.

Clark County can offer and implement a set of programs to support the income-producing needs of farmers. Public support for agri-tourism, regulatory relief and technical assistance, new market support and other programs may all be needed if a significant number of farmers are going to enter this business. Without a series of focused efforts and programs specifically designed to support farmers to a much greater degree, the downward trend of farming in Clark County will almost certainly continue.

In this context, loss of farms that are located within the expansion areas will only slightly contribute to the downward decline. However being inside the UGA does not necessarily mean the farms go out of business, since some farms (mostly nurseries) are within city boundaries. However, in many cases these urban-centered farms can be expected to cease operation. Their special challenge is that they are closest to development and least able to handle their higher costs, uncertain land tenure and land use incompatibilities. Most are small and are struggling to be competitive and remain in business. Existing agricultural zoning and programs of support are not sufficient to help these agricultural operations be competitive in order to remain in business for the longer term. Some are located on high quality soils but this is not uniformly true.

About 72 percent of Clark County's identified commercial agricultural land remains outside of the boundaries of the Preferred Alternative area. Out of the 145 identified farms in Clark County, there are 112 farms in production which are located outside of the boundaries of the Preferred Alternative. There are 11 identified farms located within the expansion areas of the Preferred Alternative and 22 farms within the current city limits or the 2004 adopted UGA boundary.

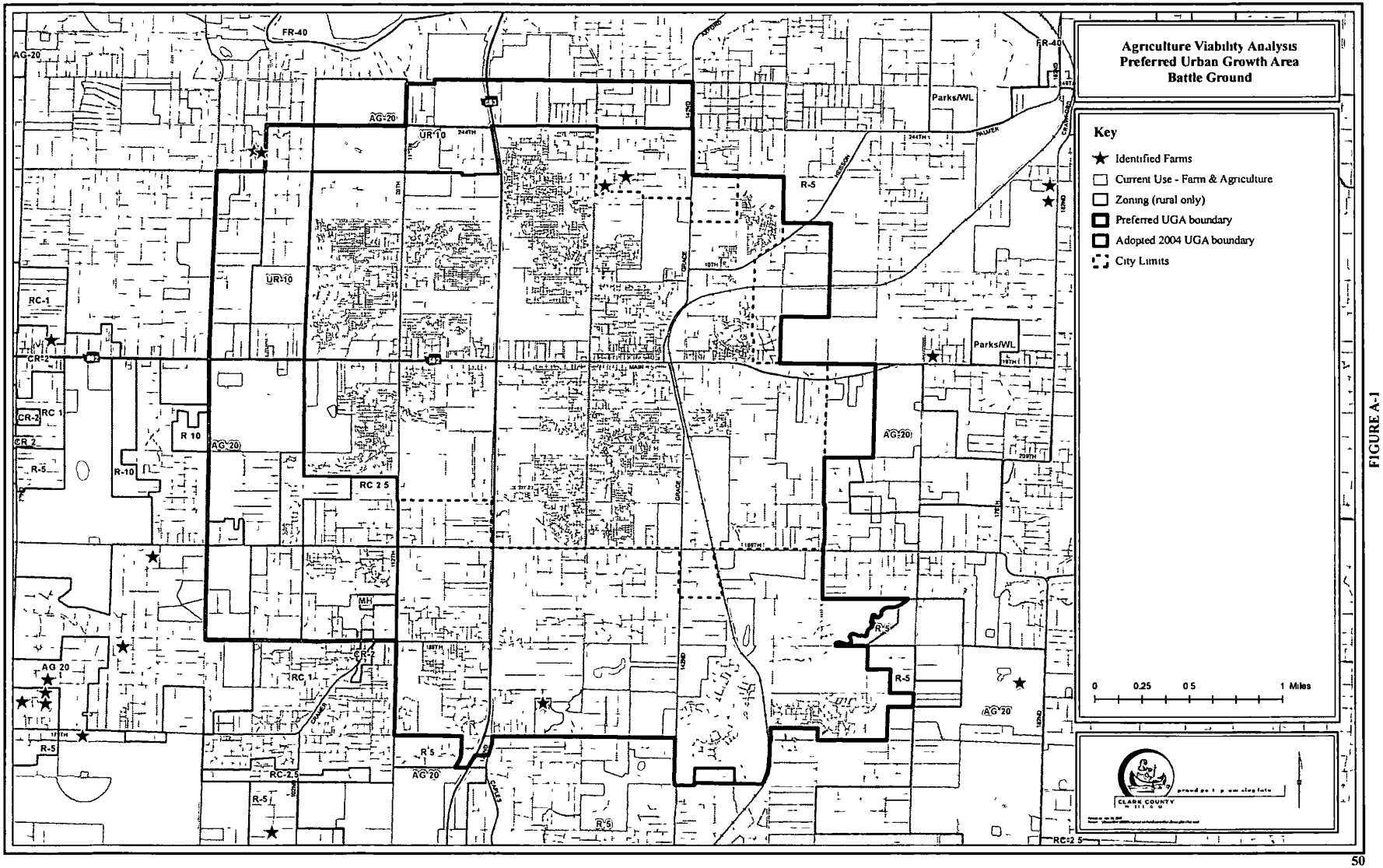

Agriculture Viability Analysis
Preferred Urban Growth Area
Battle Ground
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.25 0.5 1 Miles
FR-40
AG-20
UR-10
R-5
Parks/WL
RC-1
CR-2
RC 1
R 10
R-10
RC 2 5
MH
RC-2.5
CLARK COUNTY

FIGURE A-1

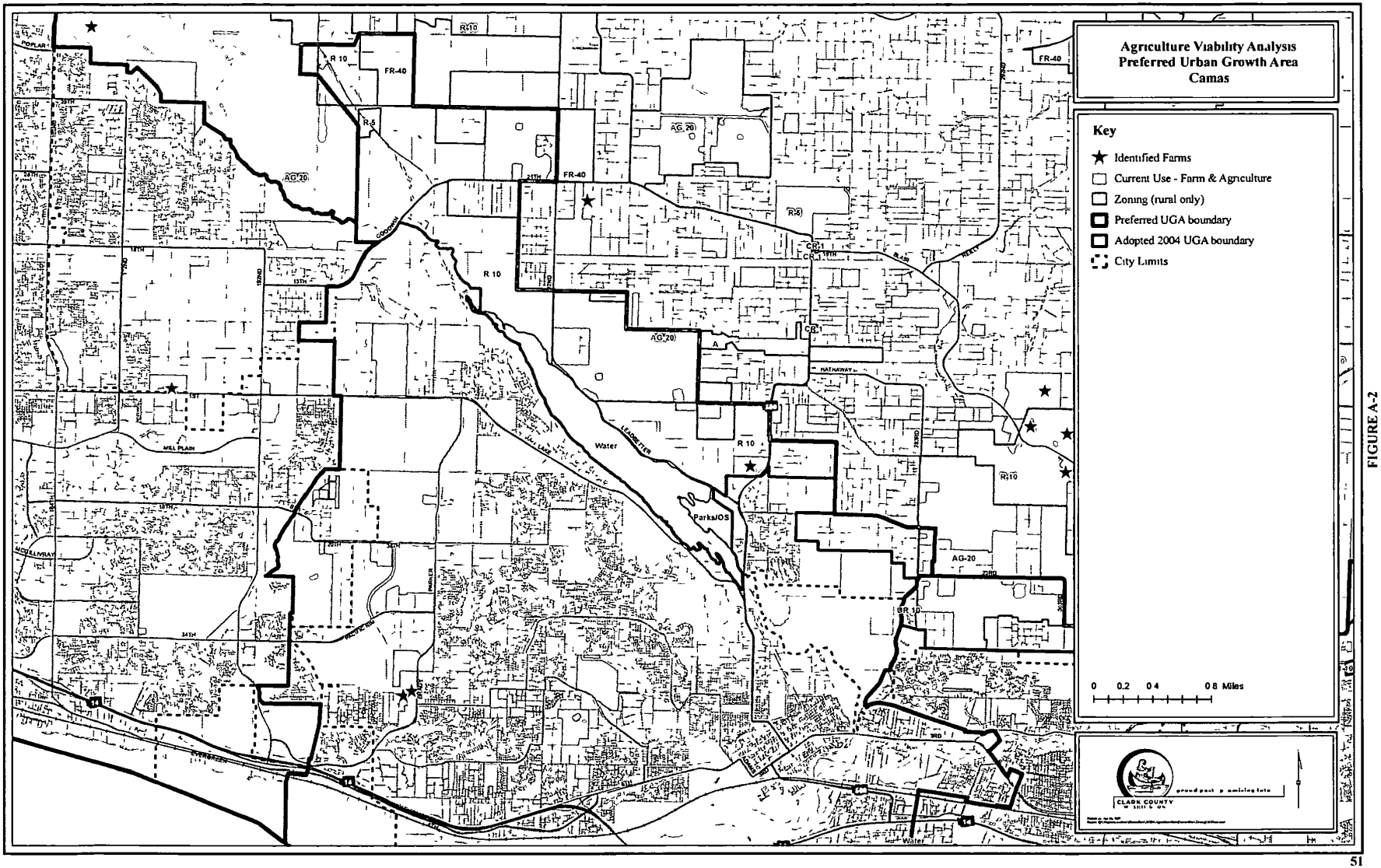

Agriculture Viability Analysis
Preferred Urban Growth Area
Camas
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.2 0.4 0.8 Miles
FR-40
R 10
R-5
AG-20
Parks/OS
Water
HATHAWAY
LEADBETTER
GOODWIN
REILLY
MILL PLAIN
CLARK COUNTY

FIGURE A-2

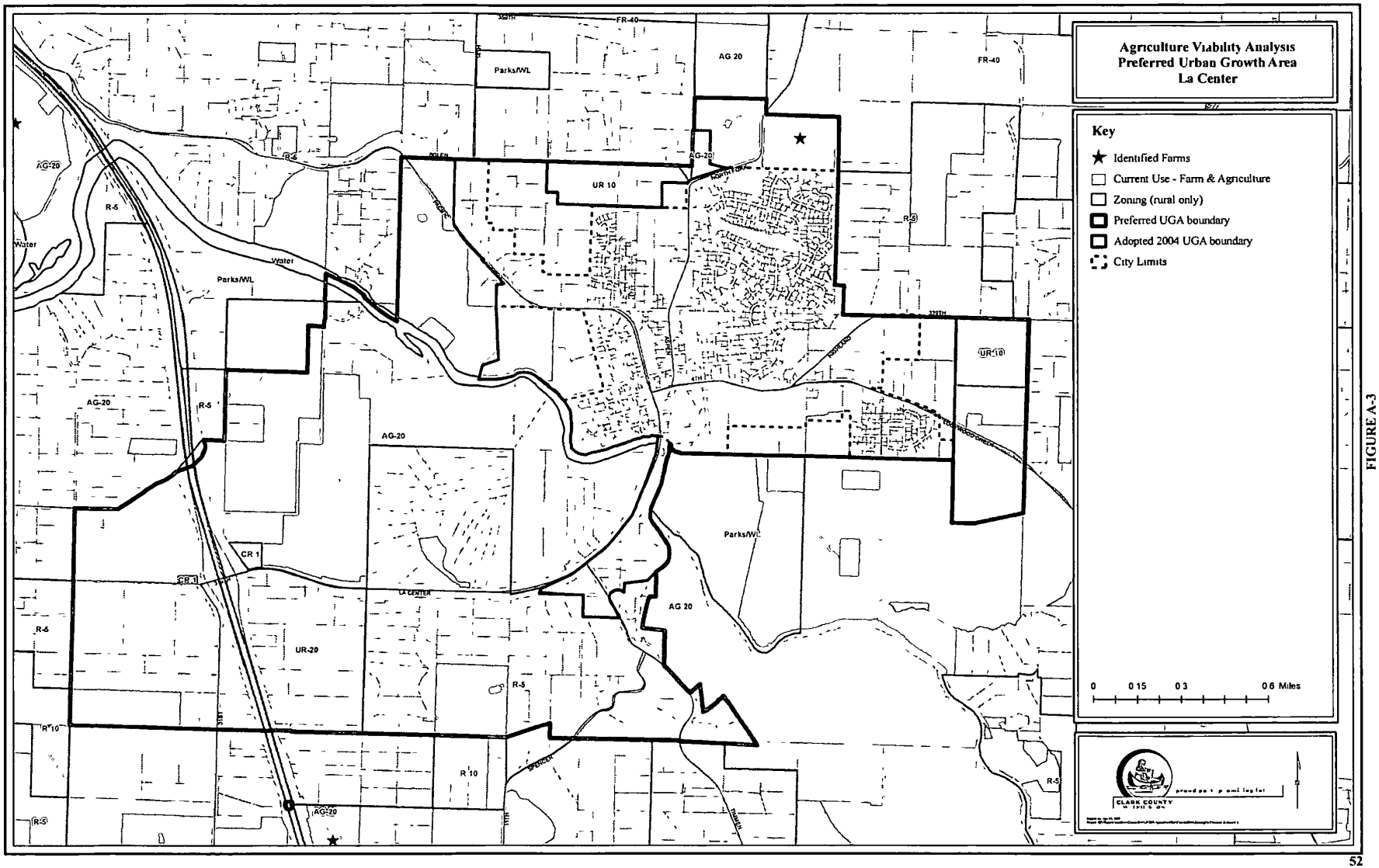

Agriculture Viability Analysis
Preferred Urban Growth Area
La Center
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.15 0.3 0.6 Miles
CLARK COUNTY
Parks/WL
AG 20
FR-40
UR 10
AG-20
R-5
Water
CR 1
LA CENTER
UR-20
R 10
UR-10

FIGURE A-3

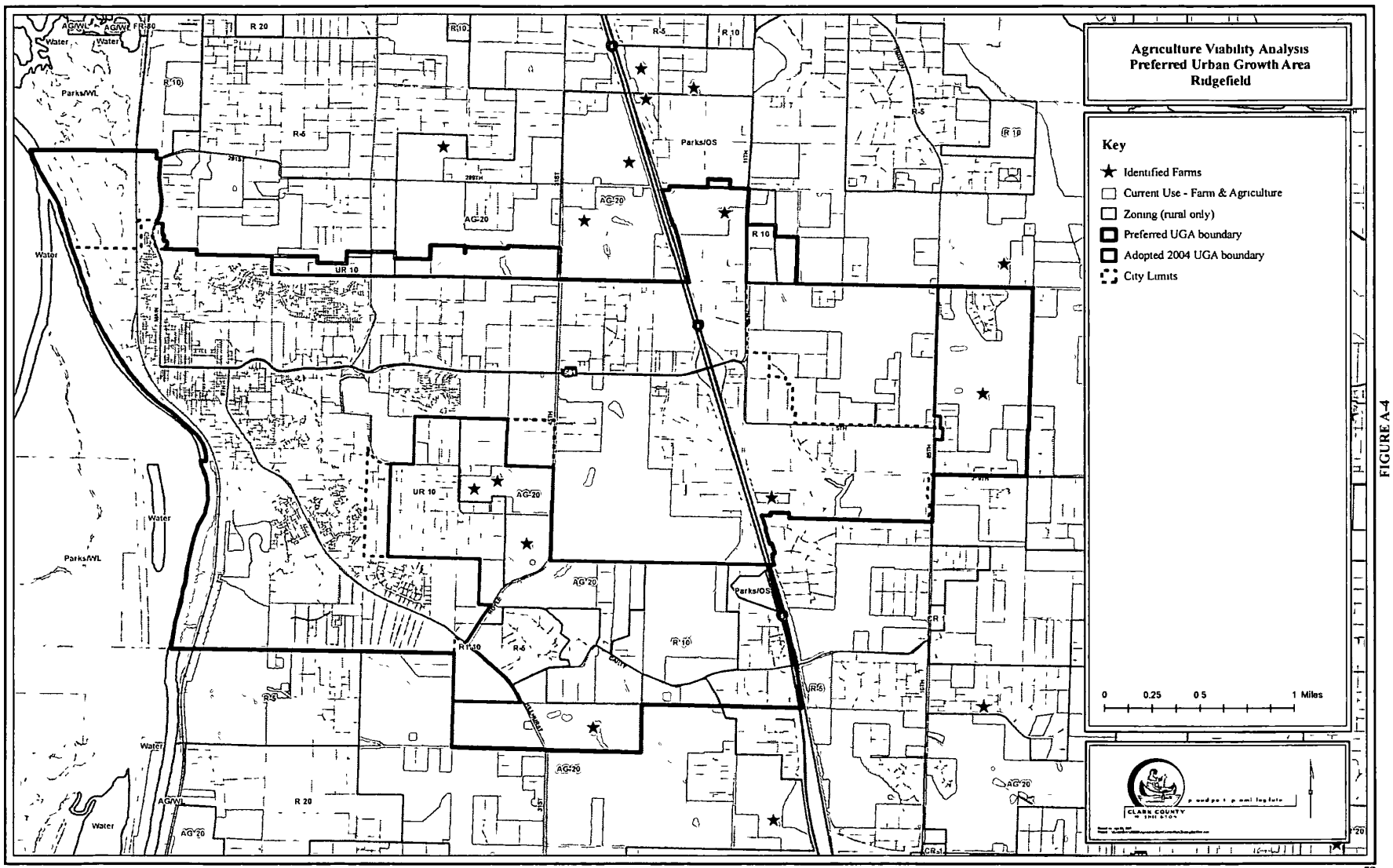

Agriculture Viability Analysis
Preferred Urban Growth Area
Ridgefield
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.25 0.5 1 Miles
Parks/OS
Parks/WL
Water
AG/WL
R 20
R 10
R-5
AG-20
UR 10
CLARK COUNTY

FIGURE A-4

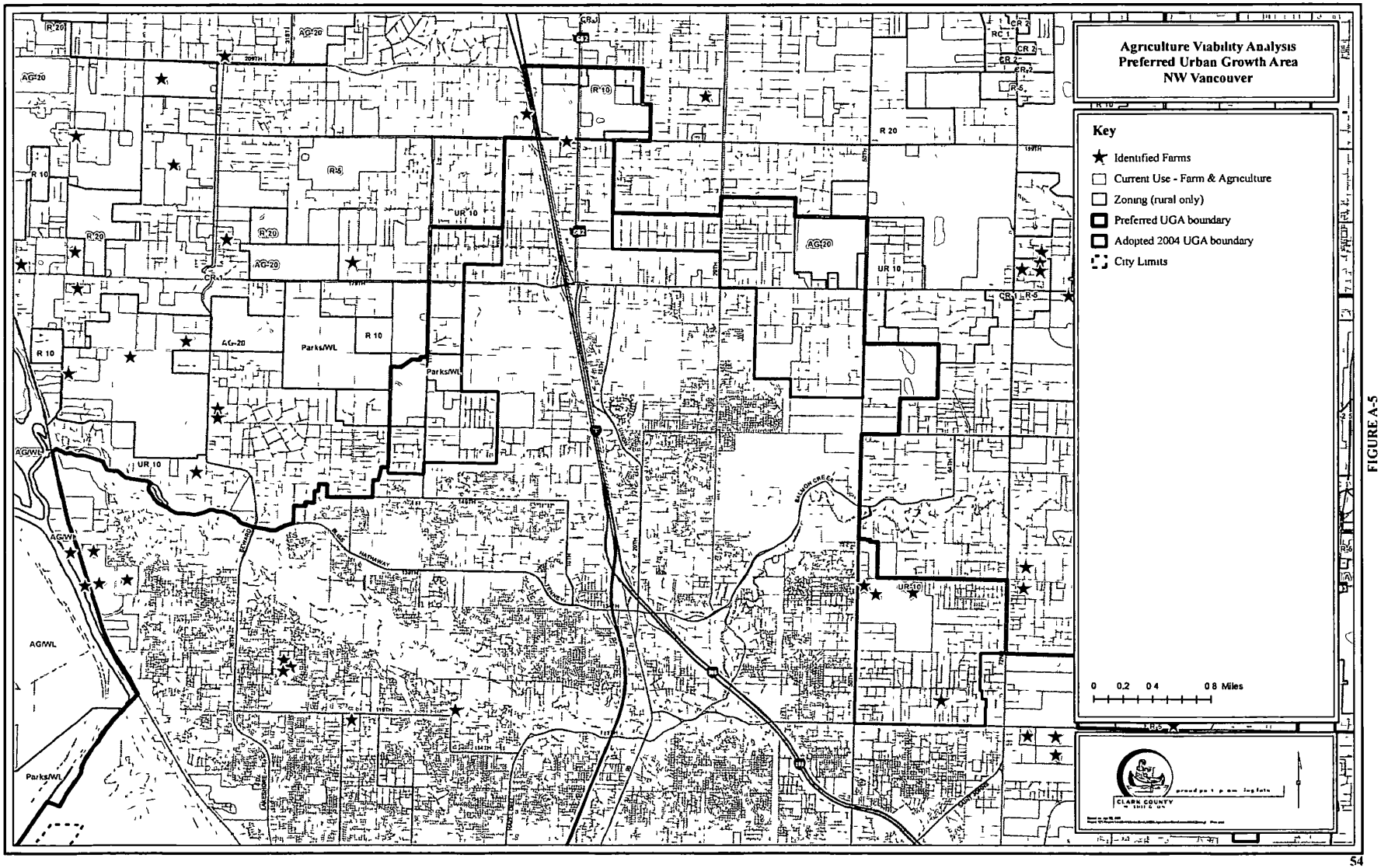

Agriculture Viability Analysis
Preferred Urban Growth Area
NW Vancouver
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.2 0.4 0.8 Miles
AG-20
R 20
R 10
R-5
UR 10
Parks/WL
AG/WL
CR 1
CR 2
RC 1
CLARK COUNTY

FIGURE A-5

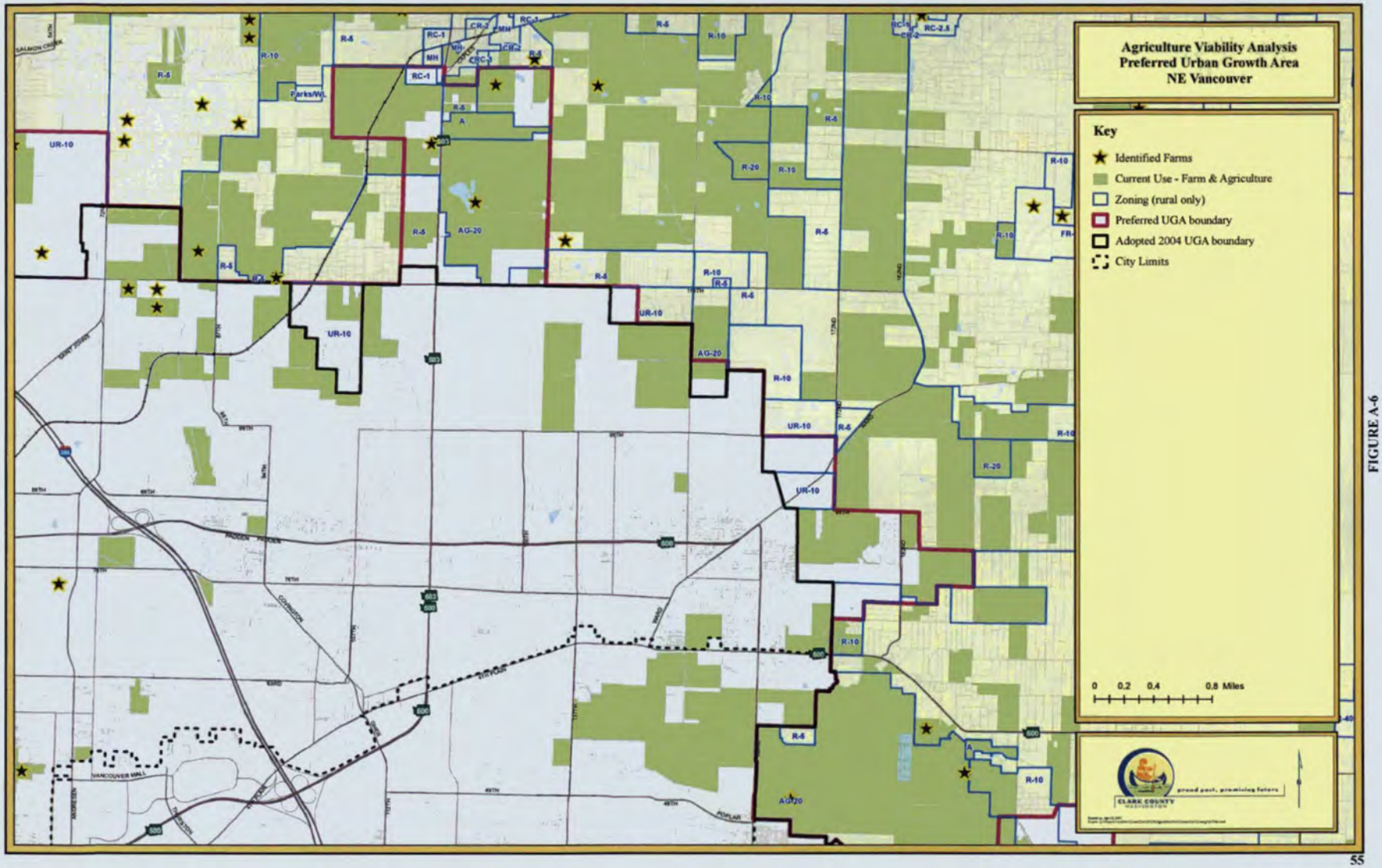

Agriculture Viability Analysis
Preferred Urban Growth Area
NE Vancouver
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.2 0.4 0.8 Miles
UR-10
R-5
R-10
R-20
AG-20
RC-1
RC-2.5
Parks/WL
VANCOUVER MALL
PROVIDENCE
COLLEGE
TRIVOR
POPLAR
CLARK COUNTY
WASHINGTON
proud past, promising future

FIGURE A-6

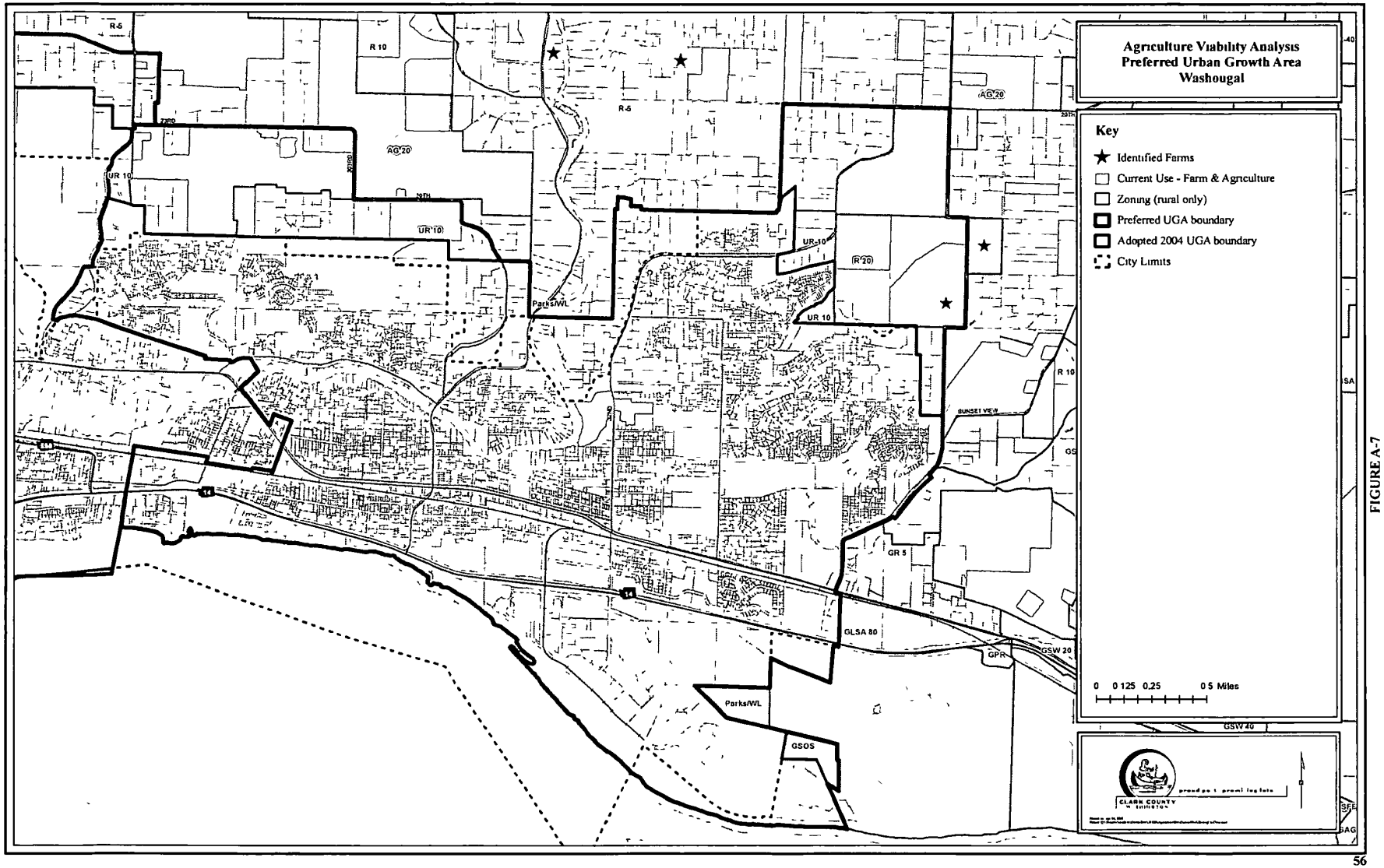

Agriculture Viability Analysis
Preferred Urban Growth Area
Washougal
Key
Identified Farms
Current Use - Farm & Agriculture
Zoning (rural only)
Preferred UGA boundary
Adopted 2004 UGA boundary
City Limits
0 0.125 0.25 0.5 Miles
R-5
R 10
AG 20
UR 10
R 20
Parks/WL
GR 5
GLSA 80
GSW 20
GSW 40
GPR
GSOS
SUNSET VIEW
CLARK COUNTY
WASHINGTON

FIGURE A-7

Appendix B: Description of the Impact Methodology

The impact model used in this study is Impact Analysis for PLANing (IMPLAN) It was first developed by the U S Forest Service for land and resource management planning The IMPLAN system has been in use since 1987 at the University of Minnesota Its further development has been privatized at the Minnesota IMPLAN Group (MIG) The model of Clark County was specified with IMPLAN Pro Version and uses 1994 and 2004 county IMPLAN data

The description model is based upon regional economic accounts The accounts are tables of interactions that describe an economy by the flow of dollars from purchasers to producers within the defined region The model is predictive in that multipliers define the response of the economy to a change in demand or production Purchasers for final use (final demand) drive the input-output model In this case, agriculture sectors are producing goods for final demand, either by local consumers, food manufacturers or export The agricultural sectors also purchase goods and services from other producers, which also sets off further purchases of goods and services These indirect purchases (known as indirect effects) continue until leakages from the region—such as imports, profits, or wages—stop the economic transactions within the region Added to the impact of direct and indirect effects are induced effects These are the effects of household spending in the regional economy

This model of Clark County was specified with two modifications of the IMPLAN data provided by MIG First, the total number of jobs in the agricultural industry was increased to match Clark County employment data from the Bureau of Economic Analysis The number of jobs was distributed to each agricultural sector according to IMPLAN proportions This adjustment was necessary because IMPLAN uses national job per output ratios to estimate agricultural employments The national job-output ratios reflect large-scale commercial agricultural rather than the smaller farm operations that are typical in Clark County, and therefore would underestimate actual employment The second modification was the increase of the fluid milk manufacturing sector's output, value added and employment figures in the 1994 model This adjustment was made because that sector's 1994 IMPLAN data did not resemble a typical year for this sector in the early 1990's No other modifications were made to key relationships such as trade flows, absorption coefficients, production functions or byproduct coefficients in the county data

The model uses Social Accounting Matrices (SAM) based local relationships Social accounting allows for consideration of non-industrial transactions such as payments of taxes by business and households The comparison models are specified with year 1994 and 2004 data The impact model is specified with 2004 data, which is the latest available, and price deflators are used to bring the impact estimates to 2006 prices

Appendix C: Clark County Economic Sector Performance for 1994 & 2004

Table C-1 – Clark County Output, Employment, Labor Income and Other Value Added, 2004				
Industry	Output ($ Millions)	Employment	Labor Income ($ Millions)	Other Value Added ($ Millions)
Crop Production	20.673	380	5.065	12.227
Greenhouse & Nursery Production	18.972	511	9.728	14.621
Beef & Dairy Cattle	21.681	499	1.011	3.581
Poultry & Egg Production	14.767	82	2.265	7.155
Other Animal Production	4.039	307	0.365	0.640
Agriculture & Forestry Services	3.492	79	2.657	2.459
Forestry, Logging & Mining	108.126	582	29.940	54.632
Utilities	1,236.136	2,213	244.167	918.282
Construction	1,901.697	16,524	798.369	945.421
Manufacturing - Food & Beverages	679.163	1,193	67.820	173.687
Manufacturing - Miscellaneous	1,393.844	5,656	296.320	417.206
Manufacturing - Wood Products	1,624.888	3,576	274.281	468.461
Manufacturing - High Tech. & Related	1,182.322	4,966	277.403	328.199
Wholesale Trade	870.693	5,348	327.189	595.172
Transportation & Warehousing	607.462	5,230	237.046	315.057
Retail Trade	1,148.239	17,229	449.525	742.002
Information	783.970	2,585	172.133	384.666
Finance & Insurance	832.734	3,939	256.533	559.790
Real Estate & Rental & Leasing	1,016.043	6,272	223.250	610.217
Professional, Scientific, & Tech. Services	1,027.755	9,293	572.895	594.621
Administrative & Support Services	577.300	10,311	274.350	347.611
Educational Services	59.342	1,644	25.978	35.308
Health Care & Social Assistance	1,390.168	17,219	752.248	874.060
Arts, Entertainment & Recreation	201.189	3,197	71.552	126.397
Accommodation & Food Services	613.940	12,602	206.243	301.955
Other Services	658.130	10,138	262.332	375.105
Public Administration	1,227.031	20,039	964.597	1,102.010

Table C-1 – Clark County Output, Employment, Labor Income and Other Value Added, 2004				
Industry	Output ($ Millions)	Employment	Labor Income ($ Millions)	Other Value Added ($ Millions)
Special Sectors	1,072.754	0	0.000	870.073
Clark County Totals	**20,296.552**	**161,613**	**6,805.265**	**11,180.613**
Agricultural Totals	**83.624**	**1,858**	**21.091**	**40.683**

Source: IMPLAN using 2004 Clark County data.

Table C-2 – Clark County Output, Employment, Labor Income and Other Value Added, 1994				
Industry	Output ($ Millions)	Employment	Labor Income ($ Millions)	Other Value Added ($ Millions)
Crop Production	52.457	1,286	15.826	18.639
Greenhouse & Nursery Products	5.469	96	2.758	1.626
Beef & Dairy Cattle	25.585	270	11.910	3.154
Poultry & Egg Production	4.949	32	1.264	1.398
Other Animal Production	2.449	127	0.930	0.494
Agricultural & Forestry Services	2.041	120	1.311	0.002
Forestry, Logging & Mining	58.614	974	22.757	13.753
Construction	1,161.703	13,766	436.912	225.704
Manufacturing - Food & Beverages	308.161	1,161	48.209	70.887
Manufacturing	3,222.751	18,699	780.897	524.039
Transportation & Communication	693.362	5,127	167.421	137.399
Trade	1,325.624	26,843	559.651	297.071
Finance, Insurance & Real Estate	1,513.785	8,354	146.453	803.036
Services	1,480.837	31,509	775.022	178.284
Government	1,213.790	18,577	631.964	118.411
Other	-6.875	744	5.035	-11.910
Clark County Totals	**11,064.702**	**127,685**	**3,608.321**	**2,381.987**
Agricultural Totals	**92.950**	**1,931**	**33.999**	**25.313**

Source: IMPLAN using 1994 Clark County data.

The figures reported here are in 1994 dollars and 2004 dollars respectively.

An important note needs to be made about industrial classification in Tables B-1 and B-2. The 1994 table is organized using the Standard Industrial Classification (SIC) sectoring scheme. IMPLAN replaced the SIC method of organization with the North American Industrial Classification System (NAICS) in 2001, and the 2004 data is organized under NAICS. The two classification systems are not directly comparable, which creates a problem when comparing Tables B-1 and B-2. However, every effort has been made to structure the agricultural sectors accordingly in these tables to ease comparisons within the agricultural sectors.

Appendix D: WAC Criteria for Agricultural Land Designation

The Washington Department of Community, Trade, and Economic Development has promulgated regulations in the Washington Administrative Code. This is to guide counties in determining agricultural and forest lands that have "long-term commercial significance" (see WAC 365-190-050,10).

This regulation states that counties shall also consider the combined effects of proximity to population areas and the possibility of more intense uses of the land as indicated by:

a) The availability of public facilities;

b) Tax status;

c) The availability of public services;

d) Relationship or proximity to urban growth areas;

e) Predominant parcel size;

f) Land use settlement patterns and their compatibility with agricultural practices

g) Intensity of nearby land uses;

h) History of land development permits issued nearby;

i) Land values under alternative uses; and

j) Proximity of markets.

Appendix E: Study Contacts

Dorothy Anderson, Washington Blueberry Commission

Rich Bachert, USDA Natural Resource Conservation Service

Joe Beaudoin, Joe's Place Farm

Ronny Bell, Pioneer Organics

Henry Bierlink, Washington Red Raspberry Commission

Steve Boynton, La Center Farm

Charles Brun, WSU Clark County Extension

Evelyn Casella, Christmas Creek Ranch

Laurie Conway, Conway Farm

Amy Cziske, Washington Cattlemen's Association

Ray de Vries, Ralph's Greenhouse

Ben Dobbe, Holland America Bulb Farms

Gary Fredericks, WSU Clark County Extension

Steve Frice, Frice's Berry Farm & Country Store

Merrill Firestone, Firestone Farms

Jack Giesy, Veterinarian

Peggy Gresham, Llama breeder

Erin Harwood, WSU Clark County Extension

Walt Hauser, Bethany Vineyards

Robin Harmon, Harmon Farm

Samantha Hatch, East Fork Nursery

Josh Hinerfeld, Organically Grown Company

Kent Hoddick, USDA National Agricultural Statistics Service

Bill Hodges, Bird's English Nursery

Jinger Jacobson, Washougal Farmers Market

Jane Larwick, Larwick's Christmas Tree Farm

Carol Miles, SW Washington Research & Extension Unit, WSU

Donna Moir, Heritage Bank

Chuck Natsuhara, USDA Natural Resource Conservation Service

Tom Peerbolt, Peerbolt Crop Management

Jeffrey Peterson, USDA Farm Service Agency

John Petty, Riverwood Tree Sales Company

Ronna Pourd, Bank of America

Robert Ray, Vancouver Farmers Market

Carol Rounds, Columbia Bank FSB

Neal Schoen, Schoen Farm

Denise Smee, Clark Conservation District

Terri Smykowski, Clark County Saddle Club

Sandra Starbuck, USDA Farm Service Agency

Doug Steinbarger, WSU Clark County Extension

Sue Svendsen, Clark County Executive Horse Council

Glen Thornton, Thorntons' Treeland

John Trax, Northwest Nursery Buyers Association

Dale Waite, Realtor and Horse Trainer

Tim Wigren, Command Performance (Horse Trainer and Private Horse Stables)

John Wines, Washington State Employment Security Department

Blair Wolfley, WSU Southwest Washington Research & Extension Unit

Jim Youde, Y's Acres

Bill Zimmerman, Bi-Zi Farms