Preserving Farmland and Farmers

Pierce County Agriculture
Strategic Plan

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To: Rob Allen, Pierce County Economic Development Division

From: Bruce Prenguber, Globalwise, Inc.

Subject: Pierce County Agriculture Strategic Plan:
Task 2: Quantitative / Qualitative Assessment

A key element of this strategic planning project is conducting an assessment of key quantitative and qualitative characteristics of local agriculture. This memorandum presents a summary of the results. The assessment was conducted by Globalwise, Inc. and includes: a review of available data and literature; supplemental data and insights obtained through direct contact with farmers, processors and other representatives of the agriculture sector; and a technical analysis of economic and other quantitative characteristics.

DESCRIPTION OF PIERCE COUNTY AGRICULTURE

Pierce County has a long history as a diverse and vibrant farming area. A 1956 account of the valley land and its capability for agricultural production states it very well:

> "From an agricultural standpoint the most important topographic feature is the valley flood plain more recently formed by the erosion of the Puyallup River and the Stuck River, a branch. The Puyallup River cut a wide trench across the glacial plains in its course from the Cascades to Puget Sound. Periodic river flooding and meandering deposited a winding plain of fine silty and sandy soils. The bottomlands contrast with the less fertile, coarse, unassorted gravels on the low uplands and moraines flanking the river valley floor. Drainage ditching and river diking have brought most of the river bottom under cultivation. Called the lower Puyallup Valley, this rich soil area extends from Orting to Commencement Bay at Tacoma, a valley bottom two to three miles wide and nearly twenty miles long."[1]

Much of the focus on agricultural activity in Pierce County today is centered on the Puyallup Valley. Yet, we have found that agriculture is present in significant ways in other parts of Pierce County as well. There is still remarkable diversity and activity in agriculture. Over the past quarter century, the size of most operations and the number of operators has clearly been decreasing, but many people continue to derive at least part of their livelihood from agriculture. Farmers, nursery operators and others who were interviewed for this analysis say that the soils, together with the climate and availability of irrigation water, still allow for very productive agricultural enterprises. Furthermore, when these natural assets are

[1] The source is the 1956 Bulletin of the Washington Crop and Livestock Reporting Service, Chapter 3, page 19, as given on the Washington State NASS website for Pierce County. The Bulletin can be found at: http:www.nass.usda.gov/wa/counties/cnty053.htm.

combined with grower know-how, Pierce County continues the long tradition of producing very high quality food and plant crops on the available land base.

Pierce County agriculture consists of a wide range of growers which include vegetable producers, dairies, beef and other livestock producers, horse farms, specialty fruit growers with such crops as raspberries and rhubarb, open field ornamental plant nurseries, greenhouse operators, flower and bulb growers, Christmas tree growers, and more[2].

Definition of Commercial Agriculture

Consideration of what defines commercial farmers/growers is at the heart of describing local agriculture. The amount of land owned or leased by a grower is not a useful qualifier because some intensive growing operations, such as greenhouses, can generate very large income on as little as one acre or less. Part-time farmers have always been an important part of Pierce County agriculture and the percentage of time spent farming or the proportion of income earned from farming does not define commercial operators. It is common that farmers/growers in Pierce County (and across the U.S.) also work off the farm to supplement their income. For purposes of this study commercial producers will be defined as those with gross annual farm incomes of at least $20,000.

Geographic Distribution of Commercial Agriculture

Much of the production of vegetables, berry fruits, nursery plants and other crops remains in the Puyallup Valley. In addition there are significant numbers of growers with crop and livestock enterprises in the Key Peninsula area, as well as in upland areas such as near Buckley, Eatonville, Graham and Roy. Throughout the county, remaining agricultural production is frequently side-by-side with residential and commercial land uses. The most intense mix of agriculture and development is taking place in the Puyallup Valley where there is steady conversion of open land to development uses.

The loss of farmland is a national phenomenon, and Washington is not exempt. American Farmland Trust has analyzed National Resources Inventory data collected by the U.S. Department of Agriculture and reports that Washington lost 7,040 acres of prime farmland between 1987 and 1992, and an additional 9,160 acres from 1992 to 1997.[3] (More recent data has not been compiled.)

In Pierce County, it is acknowledged by all industry observers that the amount of land devoted to agricultural production is declining. Farmland, especially parcels with highly productive soils in the Puyallup Valley, is being converted for developed uses. Upland pasture land is also being converted. Yet no scientific data has been maintained that consistently defines agricultural land, let alone calculate the rate it has been converted to other uses.

Demand for developable land is accelerating and this is rapidly increasing the market price of "bare" land. Population growth also creates demand for more public services such as highways, sewer lines and other utilities. These services are often funded at least in part by current land owners. Even if farmers do not wish to sell at the high land prices (which some clearly want to do), higher taxes are cited as a reason that some farmers sell because they cannot generate enough net income from farming after paying their rising assessments.

[2] To our knowledge, no current, precise count of the number of commercial agricultural enterprises in the County is maintained by any source.

[3] American Farmland Trust, Farming on the Edge, as reported at www.farmland.org/farmingontheedge. Don Stuart, Director of the Northwest Regional Office of AFT and Ed Thompson from AFT in California provided assistance in interpreting the agriculture land loss data.

AGRICULTURAL PRODUCERS

The U.S. Census of Agriculture is the commonly quoted source of data used to describe county level farm production. The total farm count of the Ag Census is not particularly helpful when zeroing in on commercial agriculture because it includes any farm reporting unit with sales of at least $1,000. The 2002 Ag Census reported 1,474 farms located in Pierce County, 515 of which had "cropland used only for pasture or grazing". Also included are 527 farms of one to nine acres. These include small tracts which are very intensively managed, though not particularly productive on a commercial scale. It is apparent through examination of other data that the Ag Census counts many more farms than can be considered commercial operations. The 2002 Ag Census reports 208 farms with annual sales greater than $20,000 – a number that is more in line with estimates of commercial farms based on other sources. The Ag Census includes a wide diversity of enterprises under the term "farms". Most notably in Pierce County, this includes what some observers refer to as the green industry (principally open field ornamental plant nurseries, greenhouse plant propagators and flower/bulb growers) as well as "food" agricultural enterprises which are traditionally considered to be farms. Our analysis shows that the green industry is very significant in Pierce County and accounts for a large share of the "farms".

We have estimated the likely range of agricultural producers by reviewing several available data sources and by interviewing knowledgeable Pierce County residents who have specialized expertise. One reference point is the Pierce County Economic Profile and Strategic Assessment which shows 61 Pierce County employer units for crop production and 38 employer units for livestock production as of the first quarter of 2003.[4]

Pierce County data on current use assessment and taxation for agriculture offers another source of information. To qualify for this tax-reduction program, participating property owners must produce evidence that they have agricultural sales. Rules allow farm operations, regardless of parcel size, to qualify for this tax status. Parcels which are one to five acres must be devoted primarily to agricultural uses and have produced a gross income of $1,500 per acre for three of the five years preceding the date of application for current use assessment. Records from the Pierce County Assessors Office show that as of January 1, 2004 there were 1,439 completed agreements or approved applications for this tax deferral status, covering 28,942 acres. In addition, there were 35 agricultural parcels not enrolled in the current use tax program as of January 1, 2004. (Note: one property owner can have more than one agreement on separate parcels.)

Based on a review of listings of businesses in Pierce County and from discussions with Pierce County Extension, local farmers/growers and others, the best estimate is that there are approximately 75 commercial food producers in the county. There are also approximately 30-40 nurseries. We have not estimated the number of livestock producers, as there is no reliable data.

Discussion of agricultural production often emphasizes food crops and livestock for human consumption. These important sectors do not encompass all of Pierce agriculture. Another important sector includes ornamental nursery crops, Christmas tree production and floriculture. In fact, many non-food agricultural enterprises are relatively profitable and growth oriented sectors in the County. (For purposes of this analysis, we have not included commercial forestry.)

Based on research conducted in cooperation with the Pierce County Extension Service, agriculture operations can be categorized and estimated as shown in Table 1. Production units are defined as a separate ownership entity.

[4] Attachment B, Pierce County Industry Concentration Assessment, First Quarter of 2003, page 67 in Pierce County Economic Profile and Strategic Assessment, by Berk and Associates, November 5, 2004.

Table 1 – Categories of Commercial Agricultural Production Units in Pierce County: 2005	
Enterprise Type	Estimated Range (Number of Production Units)
Berries (Principally Raspberries)	5 to 12
Vegetable (Fresh Produce)	8 to 10
Wholesale Nursery/Greenhouse & Retail Nursery	30 to 40
Christmas Tree	10 to 15
Floriculture (Flowers and Bulbs)	3 to 5
Rhubarb	15 to 20
Poultry	5 to 10
Milking (Cow) Dairies	5 to 6
Beef	NA [1]
Horse	7 to 15
Turf	1 to 3

[1] The number of commercial beef operations could not be accurately determined.
Source: Globalwise Inc, and Barney & Worth with assistance from Pierce County Extension.

Together, the climate and soils of Pierce County enable local producers to grow a diverse mix of food and plant crops. Additionally, dairies were a mainstay sector in years past. Urban growth and expansion of large-scale production enterprises have changed the face of local agriculture. Many of the county's largest fresh vegetable growers have sold their land and exited agriculture, relocated to other regions, or they are managing shrinking farm enterprises on farmland they still own (or lease) while they also sell off portions of their land base for development.

Available data and comments from stakeholders signal a trend away from large-scale commercial agriculture and toward down-scaled existing operations and new small farm enterprises. Several of the remaining large scale farmers we spoke with have voiced their desire to sell their land holdings. Looking into the future, this trend will likely continue.

Following is a brief recap of conditions in some of the major crop and livestock categories. This description is based on interviews with local agriculture community representatives and other sources.

- **Fresh Vegetables:** Farms produce a wide range of vegetable crops, including lettuce of many types, celery, carrots, corn, cabbage, pumpkins, squash, broccoli, cauliflower, green beans, and more. These crops are grown in the Puyallup Valley where the soils are deep and fertile and the terrain is flat. At least two growers with 20 to 100 or more acres in the last five years have left vegetable farming, and others are thought to be scaling back or also going out of business as their large tracts of land have attracted lucrative purchase offers from developers. The costs of property taxes and local improvement taxing districts (LIDs) for urban improvements such as roads, have reportedly also contributed to the departure of vegetable farmers. One agricultural lender predicts no major vegetable growers will be left in five years if current trends in the Puyallup Valley land market prevail.

- **Berries:** The well-drained Puyallup Valley soils and favorable climate once allowed this area to be the largest red raspberry production area in Washington. Until the 1950s, there were hundreds of berry growers, many being part-time producers who had small fields and sent their harvest to local canneries and freezing plants. In addition to red raspberries, the valley growers have also traditionally produced blueberries, blackberries and strawberries in fields dotting the valley areas of Pierce County. Strawberries were also grown on some upland sites. With the notable exception of about seven to ten growers, the berry producers have left Pierce County. The conditions facing the berry growers are similar to the issues for vegetable producers. According to data from the Washington Raspberry Commission, there were 11 growers in the central Puget Sound region (principally Pierce County) in 2004. Their total production was 650,000 pounds, or 1.2 percent of the total state production. The remaining berry growers in Pierce County have already established marketing programs to sell either fresh or processed fruit directly to consumers through farmers markets, fruit stands, or by other innovative means such as air shipment of fresh berries to customers in major metropolitan areas throughout the U.S. Despite these measures some of the remaining producers state that they are still not profitable. Fresh and frozen fruit produced in the U.S. (Oregon and other states have more processing capacity and less urban pressure) as well as imports from British Columbia, Chile and other countries have added financial pressure and accelerated the decision of some to leave this sector.

- **Rhubarb:** These growers principally produce rhubarb for processing, with a small amount sold seasonally as fresh product. Low priced frozen imported products and the ongoing urban development pressures also affect long term viability of rhubarb production. The Washington Rhubarb Growers Association which is a cooperative of growers in Pierce County has fallen to 14 members, from a membership of about 50 a decade ago.

- **Dairies:** The number of commercial cow dairies (farm milking operations) has steadily decreased to five or six in the County. (We have not obtained reliable information to determine the extent of local goat milking operations.) There are two commercial dairy processing plants in Pierce County according to the Washington State Department of Agriculture. The larger of these purchases virtually all of its milk from outside the county. A major reason for the reduction in dairies is the high cost to comply with environmental regulations related to manure waste management and water quality maintenance in western Washington's wet climate. Dairy production has become more attractive in eastern Washington, eastern Oregon and Idaho, where land is much less costly and the dairies are closer to the major feed sources. Large scale dairies of 1,000 cows and more in these drier climates are also replacing the smaller operations such as those traditionally found in western Washington. Another drawback in Pierce County is the incompatibility of dairies with ever closer suburban neighbors. The large tracts of land held by dairy farmers are also an attractive source of land for residential and commercial development.

- **Beef & Hogs:** Cattle are raised in large numbers in Pierce County. However most cattle production is in very small herds owned by non-commercial rural residents. The National Agricultural Statistics Service reports that in 2004 Pierce County had 16,500 head of beef cattle and calves. The beef count was 23,500 head in 2000 but dropped sharply to 16,500 in 2001 and has apparently been flat since that time. A recent analysis of livestock enterprises conducted for the Pierce County Conservation District estimated that about 485 head of cattle are on commercial agricultural enterprises. There are no estimates of the number of commercial cattle operations in Pierce County.[5] The Conservation District report also has the estimate of about 70 head of commercially produced hogs. There are three stationery slaughter facilities which process beef, hogs and other livestock. Also, two mobile slaughter operators were identified in the County, with one to three more mentioned by butcher shops as part-time operators. There are also a number of butcher shops which cut and wrap meat.

- **Poultry (chicken and egg producers):** There is one very large egg producer in Pierce County. Otherwise, there are a modest number of small enterprise egg producers who typically have laying hens as one aspect of a highly diversified small farm enterprise. There are two to three producers of broiler chickens in Pierce County which are contract producers, with small diversified poultry producers also contributing production. One chicken slaughter facility was identified in Pierce County.

- **Christmas Tree Farms:** Pierce County has approximately 10 to 15 large-scale, commercial Christmas tree farms, with most of these offering "choose and cut" tree sales to local residents. This count includes two wholesale tree farms where Christmas trees are harvested and shipped in bulk to retailers and others who sell locally and out-of-state to final customers. Northwest Christmas tree industry leaders cite estimates that the U.S. has twice the number of Christmas trees in the ground as are needed based on current demand. Across the U.S., tree growers are contributing to a marketing fund in an attempt to increase sales.[6] The future of this industry sector for all but the largest growers probably lies on greater emphasis of selling to local (Puget Sound) buyers.

- **Plant Nurseries and Greenhouses:** Ironically, the rapid growth in residential development has been a major boost to one segment of agriculture: nurseries that supply ornamental shrubs, trees and specialty plants to landscape homes and commercial buildings. There is a wide diversity of types of operations in this sector. For example, there are wholesale growers who sell to others before the plants reach the final consumer/buyer. Wholesale growers may use one or more of several growing techniques: a) open field production which generally includes the production of "ball and burlap" trees (conifer and deciduous), bare root deciduous trees and ornamental shrubs; b) container production also occurs in plastic containers that sit above ground in open fields, as well as in greenhouses; and c) tissue culture production which is mainly done in greenhouses. A second class of grower is an intermediate wholesaler, who typically buys small plants and grows them to a further stage for re-sale. Finally there are retailers who sell to the final customer; but many retailers also have some type of growing operations as well. Twenty nurseries in Pierce County are listed in the directories of the Washington Specialty Nursery Association and the Washington State Nursery and Landscape Association. This may significantly understate the true number of open field and green house growers in Pierce County. This sector appears to be very viable and growing in relation to commercial food production in Pierce County.

- **Flower Bulbs and Cut Flowers:** There are two remaining bulb growers in Pierce County, the result of a slow but steady declining trend. These growers are facing mounting competition from imported supply and from producers located elsewhere in the Northwest. A number of cut flower growers operate in Pierce County, but data is limited.

- **Horse Farms:** Commercial equine enterprises generally include breeding, stables and/or training operations which involve a significant number of horses. For purposes of this analysis, five

[5] Livestock Influenced Water Quality Issues, for Pierce County Conservation District, September 12, 2005 prepared by Keith Underwood.
[6] See "News from National", pages 6-7 in Outlook, Fall 2004 (published by the Pacific Northwest Christmas Tree Association).

horses or more are considered to be commercial agriculture. These enterprises exist in many parts of Pierce County, typically in the less densely populated upland areas such as Graham.

- **Turf:** There are two or three turf farms in Pierce County, with one firm now operating only an administrative office and a yard for turf orders to be picked up by landscape contractors and homeowners. This company previously grew turf in Pierce County, but the land was sold for development several years ago.
- **Other:** A small number of other uncategorized types of agricultural enterprises exist in Pierce County. These include: sheep herd dog training and sheep production for wool. Also there are several farms that count on agriculture entertainment / tourism (corn maze, etc.), to contribute to their income stream. There are three stationery meat slaughter operations in the County which all receive livestock grown in the County for processing. There are also three to five mobile slaughter operators.

Organic Producers

Data from the Washington State Department of Agriculture (WSDA) shows that Pierce County currently has six private sector agricultural producers that are certified under the State's organic certification program. A seventh certified producer is the Washington State University Research Center in Puyallup. The six private producers include: three diversified vegetable and fruit growers, two blueberry growers, and one livestock producer. Other producers may be certified by third party certification organizations other than WSDA, such as Oregon Tilth, or they may follow organic and sustainable production techniques but not wish to comply with the specific requirements of the National Organic Program, and are therefore not identified in available data sets.

Community Supported Agriculture

Across the U.S., the community supported agriculture (CSA) movement has emerged as a means for consumers to have a direct connection with the farmer who grows their food. CSA involves consumers subscribing to a share of a farm's produce. Typically, consumers pay for their share in the spring which gives the farmer the needed funds to purchase seed and other inputs to plant and care for the crops from planting through harvest. Consumers then regularly receive a box of fresh produce throughout the growing season. CSAs have expanded rapidly in the last ten years, with more than 1,000 now operating in the U.S. Each CSA farm may have dozens or even hundreds of shareholders.

In Pierce County, most CSA farms are in their developmental phase. According to CSA farmers themselves, there are from three to five CSA farms in the County which produce a diverse set of crops for their subscribers. CSA operations typically utilize from 3 to 20 acres in Pierce County and generally produce organic fresh vegetables and fruits. In total, there are fewer than 100 acres of land in CSA farms in the County, with a customer base estimated to be between 600 to 800 families. Some farms also serve more than their CSA customers. At least two Pierce County CSAs are also active vendors at local farmer markets and one also sells its fresh foods to a local restaurant. There appears to be considerable room for growth in the CSA sector, particularly given the large surrounding urban market and increasing demand for "fresh food" and growing importance of "food safety". CSAs are also well-suited to operate on fewer acres, and as described in Task 4, smaller farm sizes are clearly the trend in Pierce County.

Non-Commercial Farms, Livestock Producers & Horticulturalists

Many Pierce County residents are avid growers of agricultural crops, livestock and horticultural crops – but generate very little income from these endeavors. Examples of non-commercial farms include:

vegetable and fruit gardeners who grow principally for themselves; and rural residents with acreage where they maintain a few cattle, goats, sheep or horses (used primarily for personal food consumption or for the enjoyment of family and friends such as horses for riding). This element of agriculture is not analyzed here because the typical motivation is personal satisfaction or personal needs, and these small-scale producers are generally non-commercial operations. Although non-commercial producers aren't analyzed for this study, it should be noted that from among the very small producers may come future commercial producers. These non-commercial producers often make a needed contribution to family income and are important to Pierce County.

FOOD PROCESSORS

Pierce County has a declining number of food processors.[7] However, of those that remain, several have operated for many years in Pierce County. Twenty commercial food processors have been identified in the County. These processors range in size from very large to quite small in terms of sales and employment. They also are quite diversified in the types of products processed. Among the group are: four meat processors; two ethnic food processors; two confectionary product manufacturers; two fruit processors; two milk bottlers (one which also produces eggs); one seasonings manufacturer; one prepared foods processor; one seafood processor; one pasta manufacturer; one vinegar processor; one specialty meat and vegetable coatings processor; and one honey processor. Six processors in this group are vertically integrated: they grow and process a portion of their crops/livestock into value added processed products.

The local processors were contacted to determine if they buy local products as ingredients. Of the twenty processors identified, nine use local food grown in Pierce County in their production process. Of those who do not use local products, the primary reason is that what they need is not produced in the County: e.g., durum wheat for pasta, garlic powder for blended spices, or potato starch for vegetable coatings. In other cases, processors buy semi-processed ingredients made from crops produced in Pierce County, but must supplement that product with ingredients processed outside Pierce County. For example, a processor may use brined cucumbers (pickles) in their product formulations. However, fresh cucumbers are the only available form of that product currently available from local growers. Another reason that local sources are not used is that processors may be sourcing several types of products from one current supplier, such as three types of frozen fruits, while the local sources may not supply enough volume or the same wide range of crops / products that the existing supplier provides to the processor.

One of the last remaining processors to use local crops is the Washington Rhubarb Growers Association. This is a cooperative of growers that owns freezing facilities in Sumner. The rhubarb growers have owned their own processing plant since the late 1920s. In addition to freezing a member's rhubarb, the plant also freezes pumpkin products and packs and ships small decorative painted pumpkins.

There are also a few small food processing operations located in Pierce County. These include beef and pork processing, honey production and berry fruit product processing. Interviews conducted for this analysis indicate a need and opportunity in Pierce County for expansion of value-added food processing to promote local agriculture.

[7] For this analysis food processing does not include retail on-premises bakeries, coffee roasters, soft drink bottlers, or bottled water businesses.

Organic Certified Processors

The WSDA currently certifies five businesses that produce organic processed food products in Pierce County. These include: two meat processors (one of the meat processors produces a range of organic products including beef, chicken, and cheeses); one bakery that uses organic wheat flour; and two organic coffee roasters using imported coffee beans. As mentioned earlier, it is possible that several additional small-scale food processors are certified by other third-party organic certification organizations. Some observers have suggested that smaller farms may not undertake certification because they object to the paperwork or the regulations, and instead prefer to emphasize their commitment to organic / sustainable production practices.

FOOD CATERERS

Pierce County has 27 licensed food catering businesses which serve food off-site, and 16 businesses which serve catered food only at their own premises.[8] The catering trade includes a number of independent catering businesses, local restaurants and other entities such as universities and the Tacoma Convention Center.

Several caterers say it is very rare for them to procure locally grown (Pierce County) foods. Reasons include: 1) the availability and quality of local crops are largely unknown by caterers; 2) caterers believe that their use of these foods is small and too infrequent to allow for reasonable delivery cost by farmers in comparison to the traditional food service distributors who make regular deliveries to these businesses; 3) purchasing local products would add management and hired labor cost for caterers because it is outside of their normal and highly standardized purchasing channels; 4) the food cost to caterers are expected to be higher than at present; and 5) the Tacoma-Pierce County Health Department regulations discourage food handlers from buying farm crops from anyone but those holding food permits or licensed by the state.

On the positive side, one national caterer points to a thriving "buy local" trend in food procurement. This expert foresees that restaurants and caterers can establish a point of differentiation from competitors with customers who prefer to enjoy / support local agriculture for their commissaries and catered events. Other caterers express interest in learning more about local foods, realizing that product quality could increase through quick delivery of fresh, local products. In this case, higher prices (if any) for local foods are justified, as least for some customers, based on a perception of higher quality.

FOOD DISTRIBUTORS

Pierce County is home to two large food distributors which have refrigerated and dry warehouse space, and extensive local and regional distribution capability. This sector has experienced consolidation, and very few smaller and specialty produce distributors remain in the County to supply restaurants, hospitals and other institutional food buyers. Most local distributors have left the business and have been replaced by fewer, larger regional operations. Local farmers have sought markets elsewhere, believing they have little chance to sell to the major food service distributors.

It is generally true that distributors purchase fresh produce from suppliers that can sell year-round and offer a large, diverse mix of fruits and vegetables. However, unique marketing opportunities exist, as shown by one local farmer who has an innovative arrangement with a local food service company to supply a specialty fresh vegetable item each year at the Puyallup Fair. Also the military market is a local opportunity afforded local farmers. One farmer reports that their largest single market for fresh pumpkins is at Fort Lewis.

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[8] Source: Tacoma-Pierce County Health Department Food and Community Safety Program.

CONSUMER FOOD SALES

Consumer Behavior and Attitudes

Recent and relevant consumer research was conducted by Washington State University in 2002 in four Washington counties.[9] King and Skagit Counties were the two Westside counties included in this research. Pierce County shares certain similarities with both of these counties and it is reasonable to consider that consumer attitudes from King and Skagit counties bracket the likely responses of Pierce County residents.

Relevant survey highlights:

- Grocery stores dominate over every other venue for the consumer shopping trips. In King County 97.4 percent of the respondents say they shop in a grocery store one or more times per week. In Skagit County the comparable percentage is 92.8. In both counties, grocery stores are a preferred place to shop – in both cases the respondents answered "yes" to grocery stores over 94 percent of the time.

- Discount stores are the second highest preferred place to shop after grocery stores in both King and Skagit Counties. Seventy-three (73) percent have an expressed preference for discount stores in Skagit County, and 58.2 percent share this preference in King County.

- In King County, farmers markets are the third most preferred place to shop (after grocery and discount stores): 55.8 percent expressed a preference for the farmers markets. In Skagit County farmers markets ranked fourth, with 43.4 percent expressing preference for them (after grocery, discount and roadside stands).

- Having local/close access to growers is correlated to the frequency of purchases directly from farmers. In Skagit County, 22.3 percent say they visit a roadside stand once or more per week; in King County the percentage is 5.9. About 13 percent of Skagitonians say they buy directly from farmers once or more per week, while about 7 percent of King County residents report the same frequency of direct farm purchases.

- Skagit and King Counties have almost identical percentages of their residents reporting that they frequently shop at farmers markets. In Skagit County, 16.0 percent say they shop one or more times per week in farmers markets; in King County the comparable percentage is 15.7 percent. The wide-spread availability of farmers markets in King County (which had 25 farmers markets at the time of the survey) is likely one key reason why the much more urbanized King County shoppers are going to farmers markets nearly as frequently as Skagitonians.

- Among the possible foods that consumers purchased directly from farmers (at farmers markets, CSAs, stands, etc.) the clear products of choice are fresh fruits and vegetables. In Skagit County, over 60 percent of the respondents said they bought fresh fruits and vegetables, in King County the percentages were each over 50 percent. Eggs, dairy products and processed foods were next in purchase frequency, but in the much lower range of 14 to 24.5 percent of the time.

- Among respondents in both counties who reported that they had never shopped at a Community Supported Agriculture (CSA) farm, the vast majority said they were not familiar with this

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[9] See http://www.crs.wsu.edu/outreach/rj/ag-consumer/index.html for further information about the survey.

method of buying food (69.2 percent reported this from the Skagit survey, and 70.6 gave this response in King County).

- Most shoppers say they have knowledge of the origin of the food they buy. In Skagit County, 79.6 percent say they "sometimes" or "often" know the origin of food. The comparable percentage in King County is 67.8 percent.

- Large percentages of consumers, when asked what factors impact their food shopping, say that local or in-state grown foods have importance. In King County, 28.3 percent say "produced locally" is very important. A higher percentage say "grown in Washington State" is very important. In Skagit County, 37.3 percent answer "produced locally" is very important and 40.5 percent say "grown in Washington State" is very important. This suggests that "grown local" and "grown in Washington" have similar preference for many consumers in this survey.

- The survey asked consumers to evaluate 17 factors when they shop for food. Among all factors the top five "very important" factors cited most often by King County respondents are: freshness (94.2%), taste (89.5%), nutritional value (78.2%), available where normally shop (75.2%), and variety (61.2%). In Skagit County, the top five responses where: freshness (94.5%), taste (92.0%), nutritional value (76.4%), available where normally shop (72.6%), and keeps local farmers in business (69.2%).

What are the implications of these survey results for Pierce County? The results show that western Washington residents shop at many different types of food outlets, with their first, very strong preference being grocery stores. Consumers show interest in knowing the source of their foods and they have a wide range of preferences which can benefit local farmers – including freshness, taste and nutritional value. Many consumers also prefer shopping where they can buy directly from farmers. For some shoppers, price is not the first factor they use to determine their food purchases. Some of the challenges that local farmers face include: getting consumers to shop where local foods are offered and/or placing local foods where consumers shop; offering more variety in foods; and also becoming better known to shoppers.

Since consumers have similar preference for "locally grown" and "grown in Washington", Pierce County growers could find significant demand for their products in King County or elsewhere in the greater Puget Sound region. This enhances their marketing opportunities beyond the immediate Pierce County area.

The popularity of farmers markets is rather remarkable since these markets are still relatively new in most locations in the state. In King County, most of the markets have opened in the last 10 years. The King County survey shows these markets to be very popular with significant segments of the population.

CSA farms are still in their infancy, and survey results suggest relatively few Westside consumers in either county knew about them. Other models, such as CSAs offering customer delivery service, may help this form of marketing grow more rapidly.

Retail Groceries

Pierce County has a large number of chain supermarkets, and also several independent supermarket retailers. The chains in Pierce County include: Albertson's with nine stores; Fred Meyer with nine stores; QFC with five stores; Safeway with 19 stores; and Trader Joe's one store.[10] Regionally and nationally, the two dominant food retailers who are exerting competitive pressure on the other grocery chains are

[10] Source: Store number estimates in this section are based on analysis of business data from the State of Washington, data from DexOnline.com, review of grocery store web sites and calls to companies.

Wal-Mart and Costco. However, they can be a dominant factor even with a relatively small presence in Pierce County. Wal-Mart has one Supercenter store in Puyallup with a full grocery department. Costco has two stores in the County (with another in the planning stages in Gig Harbor).

The two main independents are TOP Foods and Metropolitan Markets. TOP Foods has three stores and Metropolitan Markets has one store in the County. There is one Thriftway store in Pierce County. Smaller, natural food stores also offer viable sales channels for local farmers.

Grocery retailing is highly competitive and in a state of flux as traditional chains try to maintain profitability and prevent market share losses to the industry's growth giants, Wal-Mart and Costco. Albertson's announced in September 2005 that it is considering the sale of under-performing stores. Most of the grocery chains in Washington are re-evaluating their strategies to attract and retain consumers, and several are likely to seek a clear differentiation from the low price leaders. Offering local fresh foods is likely to gain interest among a select group of grocery stores as one such strategy.

The larger chains have a significant challenge with local sourcing because they want assurance of continuous supply and volumes adequate to meet annual needs. To source locally grown produce, chains would need to find a cost competitive way to alter their centralized buying and distribution systems.

Farmers Markets

Pierce County farmers markets have become a growth component of food sales, with local farmers joining other Washington farmers as the backbone of this sales channel. According to the Washington State Farmers Market Association, in total, all of the Pierce County farmers markets grossed $1.75 million in 2004.[11] The Association estimates that food sales account for about 75 percent of the total sales at the markets. Thus, farmers' gross revenues can be calculated to approximate $1.3 million. Sellers include growers from throughout the state with local farmers being the primary beneficiaries. Farmers markets state-wide have had sustained annual sales growth of approximately 20 percent. However, sales growth in 2003 to 2004 was more moderate, at about 7 percent. Early indications for 2005 sales are that sales are back on a higher growth track closer to the longer term trend.

The director of the Washington State Farmers Market Association indicates that food sales at farmers markets are estimated to total one-half of one percent of all food sales in Washington. If the results of the 2002 survey results from King and Skagit Counties are accurate, there appears to be a bright future for this market channel. In Pierce County, the question revolves around whether consumers have the same preferences for purchasing foods at farmers markets as in other Puget Sound counties, or whether there are other factors at work which might negatively affect demand. For example, two Pierce County farmers who have long experience in local farmers markets say that local consumers will not pay the same prices for fresh fruits and vegetables as King County residents pay. For some Pierce County farmers these markets work well, but this is not universally true for local growers.

Community Supported Agriculture

As a whole, CSAs in Pierce County sell approximately $200,000 to $250,000 of locally produced foods annually. With minor exceptions, local CSAs rely on consumers coming to the farm to pick up shares. In addition, Tacoma area residents are in the home delivery "service area" of other CSAs located in western Washington. Local CSA farming is in an early stage of development and sales could expand in the future if new farms adopt this business model. CSAs are further discussed in Task 4 – Trends and Forecasts.

[11] Sales data provided by Zackary Lyons, Director, Washington State Farmers Market Association.

Farm Stands and Other Direct Sales

There are both year-round and seasonal farm stands in the Puyallup Valley. No data has been reported on the sales from these ventures and actual sales volumes are subject to seasonal fluctuations. Farm stands offer another successful market outlet and reliable profit center in several cases. Factors related to success include highway location, access, visibility, and the ability and willingness of individual farmers to market their products. Some farmers have indicated that their strength is not in direct sales and so they have either never tried farm stands or have had unsuccessful experiences.

Demand for delivery of fresh local food is also being met by delivery services which act as a kind of shopping service for urban dwellers who want local foods but cannot or do not want to go out to one or more farms to pick up their items. Typically these consumers want organic foods or other specialty fresh foods. They place orders that are filled and delivered to their residence. At least one CSA in Pierce County does this in very limited cases. Delivery services are much more common in locations such as Seattle and Portland.

LAND USE AND LAND MARKET PRICES

Amount & Location of Agricultural Land in Pierce County

Data sets developed by the Economic Development Division, Office of the Pierce County Executive, provide perhaps the most accurate current estimate of agricultural land quantity and geographic distribution.[12] Using records provided by the Pierce County Assessor's Office, the project team identified six individual agricultural areas: Puyallup Valley; Anderson Island/Nisqually Delta; Bonnie Lake-Buckley Plateau/Carbonado; Central County; Peninsula; and Roy/Eatonville.

Parcels within each of these agricultural areas generally fall into one of five use classes.

- *Use Class 1* - *Agricultural Resource Land Only*. Zoned ARL, but not assigned Agricultural Current Use Assessment or other agricultural designation in the Assessor/Treasurer database.
- *Use Class 2* - *Agricultural Use with Agricultural Current Use Assessment Only*. These parcels are utilized for agricultural purposes as indicated by enrollment in the Current Use Assessment program, but are not zoned ARL.
- *Use Class 3* - *Agricultural Use without Agricultural Current Use Assessment Only*. These parcels are utilized for agricultural purposes as indicated by the Assessor/Treasurer land use code (8100 to 8200), but are not enrolled in the Current Use Assessment program and are not zoned ARL.
- *Use Class 4* - *Agricultural Resource Land with Agricultural Use*. These parcels are zoned ARL, and are utilized for agricultural purposes as indicated by either enrollment in the Agricultural Current Use Assessment program, or are designated as agricultural use by the Assessor/Treasurer land use code (8100 to 8200).
- *Use Class 5* - *Agricultural Resource Land with other Current Use Assessment designation*. These parcels are zoned ARL, and are enrolled in either the Open Space or Timberland Current Use Assessment program.

[12] The Pierce County Geographic Information System (GIS) was used for this analysis. Parcel information is from the Assessor/Treasurer "Tax Parcel" theme. Parcel acreage was calculated from the X-Tools "calculate area" function for parcel polygons.

Parcels in use classes 2, 3 and 4 are considered agricultural in this analysis. Class 1 acreage is not included because agricultural use could not be verified. Class 5 is not included because that acreage is enrolled in either open space or timber current use programs. Each of these parcels in use classes 1, 2, and 3 has either been enrolled by the property owner in Agricultural Current Use or is designated as agricultural by the Assessor/Treasurer. By this determination, there is a total of 28,890 acres of land in agricultural use in Pierce County, as shown in Table 2.

Table 2 – Agricultural Lands in Pierce County: 2005		
Use Class [1]	Number of Parcels	Acres
1	1,349	16,859
2	1,185	18.803
3	23	199
4	443	9,888
5	111	2,132
Subtotal for Classes 2, 3 & 4 (Used for agriculture)	1,651	28,890
Total, All Classes	3,111	47,881

[1] See text for definitions of use classes.

Source: Pierce County GIS system; "CountyView", as analyzed by Robert Allen, Economic Development Division, Office of the Executive, October, 2005.

The ARL zone was established by Pierce County to recognize lands of long-term commercial significance as required by the state's Growth Management Act mandate. Some lands in this zone may not be categorized as commercial use based on current use assessment.

The amount of agricultural land by the six sub-areas of the County is presented in Table 3. As shown, the Puyallup Valley comprises 4,905 acres of the total agricultural land in Pierce County, or approximately 17 percent of all Pierce County agricultural land. The largest amount of agricultural land is in the Roy/Eatonville area: 12,523 acres, or 43 percent of the total. All of the sub areas have significant amounts of agricultural land, except the Anderson Island/Nisqually Delta area.

In forecasting the trend of agricultural land conversion to development use, it is helpful to examine plat activity. While platted land may not be developed immediately, it does show an intention to sell or develop the parcel. As indicated in Table 3 below, almost 15 percent of agricultural land in the Bonnie Lake/Buckley Plateau is platted (548 acres out of 3,755 acres) and about 11 percent of Puyallup Valley agricultural land is platted (526 acres out of 4,905 acres). In the remaining four agricultural areas, the platted land is less than 10 percent of overall agricultural land area. Commercial development activity, or plats under construction, would be added to this total and increase the overall volume of lands with conversion potential.

Table 3 – Land in Agricultural Use and Plat Activity by Sub-area in Pierce County: 2005			
Agricultural Sub-Area	Agricultural Land (Acres of Use Class 2, 3, & 4)	Agricultural Land with Plats Pending [1]	Ag Land with Plats Pending As Percent of Total Ag Lands
Puyallup Valley	4,905	526	10.7%
Anderson Island/Nisqually Delta	123	0	0.0%
Bonnie Lake - Buckley Plateau / Carbonado	3,755	548	14.6%
Central County	5,172	341	6.6%
Peninsula	2,414	64	2.7%
Roy / Eatonville	12,523	146	1.2%
Total	28,892 [2]	1,625	5.6%

[1] Plats include formal, short, large lot and mobile home. Commercial permit activity is not included.
[2] Total agricultural land does not agree with totals reported elsewhere due to rounding.
Source: Pierce County GIS system; "CountyView", as analyzed by Robert Allen, Economic Development Division, Office of the Executive, October, 2005.

Land Prices

Pierce County has two distinct markets for agricultural land. Agricultural land that is in very close proximity to cities is in very high demand for housing and commercial development. A different land market exists in the rural areas of the County where development demand is much lower.

A recent national analysis evaluated county-level data to determine the factors that establish market prices for farmland.[13] This analysis shows that Pierce County has joined other major metropolitan areas throughout the U.S. where the farm value of land now represents only a fraction of full market value. In most urban counties, the agricultural value of farmland is now below 30% of market value. This is corroborated by the Pierce County Assessor's Office data for agricultural land in the Current Use taxation program. For 2004, the most recent year for available data, the Assessor's Office estimates the value for agricultural use was only 15 percent of the full market value for the agricultural land county-wide.

Land in the Puyallup Valley (where farming is often side-by-side with development) is selling in the range of $20,000 per acre up to as much as $1.0 million or more. Farmers are well aware of the substantial market prices being paid for land, and many want to keep open the option to sell their land now or in the future. There are a wide range of reasons that farmers want to preserve this option. In some cases, there are no family members to carry on the farming operations when the current generation wants

[13] See The Effects of Potential Land Development on Agricultural Land Prices by Andrew Plantinga, Rubin Lubowski and Robert Stavins, February 2002, John F. Kennedy School of Government, Harvard University, Faculty Research Working Paper Series RWP02-012.

to stop farming. In other cases, the land owners say the farmland represents a significant share of their total assets and many farmers want to realize the full sales value of the land for their "retirement plan".

According to farmers and nursery operators in Pierce County, they can currently lease land for as little as $300 per acre per year, to a high of $1,000 per acre or more. Factors that affect rental rates include the availability of water and proximity to other land in the leaseholder's operation.

A comparison of farmland rental rates to land prices illustrates the problem farmers face when bidding for land against non-farm buyers. Using typical cash rent of $750 per acre for cropland, and a capitalization rate of eight percent, the equivalent market value of the land for farming is $9,375 per acre. Crop farmers are often willing to pay more than the capitalized value of the land for crop production if they expect crop prices to increase in the future or if they view land as a good long term investment for possible future sale. Nurseries are often willing to pay even more for land than food crop producers because nurseries earn a higher gross income per acre. Nonetheless, even if growers pay $10,000 to $15,000 per acre to purchase land, they do not come close to matching the prices developers are able to pay.

CONTRIBUTIONS OF AGRICULTURE TO THE LOCAL ECONOMY

Key economic contributions of agriculture are estimated here through analysis with an input-output model that traces significant local economic linkages within Pierce County.[14] There are seven sectors that describe agricultural production in the model. Table 4 presents a sub-sector summary of the contributions of Pierce County agriculture to the local economy.

Table 4 – Economic Contributions of Agriculture in Pierce County: 2001

Industry Sector	Industry Output (Millions)	Total Employment	Employee Compensation (Millions)
Vegetable Farming	$6.15	116	$1.36
Fruit Farming	$7.44	106	$2.20
Greenhouse & Nursery Production	$28.75	387	$15.22
All Other Crop Farming	$2.59	63	$0.24
Poultry / Egg Production	$11.77	48	$1.28
Animal Production Except Cattle, Poultry & Eggs	$5.60	122	$0.93
Cattle Ranching / Farming (includes Dairy)	$53.17	1,028	$4.30
Totals	$115.47	1,870	$25.53

Source: IMPLAN using 2001 Pierce County data.

[14] IMPLAN is an economic model which has been applied to 2001 Pierce County data. The model was developed in 1987 and is now a proprietary product of the Minnesota IMPLAN Group. The model is widely used in the U.S.

Table 4 shows that agriculture contributed an estimated $115.5 million of output to the economy and over 1,870 jobs in the County in 2001. Employment compensation was over $25 million. Although this data is four years old and some elements of agriculture have declined with land conversion to other uses, agriculture remains a substantial contributor to the local economy. This is further discussed below.

Another way to look at the contributions of agriculture is to consider that vegetable farming, fruit farming, greenhouse and nursery production and half of "other crop" agriculture takes place primarily in the valley areas of the county. The remaining half of "other crop agriculture" and all livestock/poultry related agricultural production activities take place mainly in the upland areas. Under this scenario, valley agriculture contributes $44 million of output (40 percent of total agricultural production) and upland agriculture contributes the remaining $72 million of agricultural output. Therefore both geographic areas can be considered equally important contributors to the production base of Pierce County.

Table 5 displays the economic multipliers related to each sector of agricultural production in Pierce County as of 2001.

Table 5 – Economic Multipliers for Agriculture in Pierce County: 2001

Industry Sector	Employment Multiplier [1]	Labor Income Multiplier [1]	Value Added Multiplier [1]	Indirect Business Taxes Multiplier [1]
Vegetable Farming	1.36	1.87	3.12	0.05
Fruit Farming	1.58	1.75	3.35	0.15
Greenhouse & Nursery Production	1.42	1.31	7.50	0.28
All Other Crop Farming	1.25	2.94	0.93	0.05
Poultry/Egg Production	2.00	2.25	2.28	0.02
Animal Production Except Cattle, Poultry & Eggs	1.23	1.93	0.79	0.08
Cattle Ranching/Farming (includes Dairy)	1.58	3.54	2.42	0.90

[1] All multipliers are type SAM (Social Accounting Matrix) and include the direct, indirect and induced effect where the induced effect is based on information in the social account matrix of the model. This accounts for social security and income tax leakage, institutional savings and commuting.
Source: IMPLAN using 2001 Pierce County data.

The aggregate employment multiplier of all seven agricultural sectors is approximately 1.45. For every job directly held at the production level of agriculture, another 0.45 jobs exist in the County due to indirect and induced economic effects. At an estimated agriculture job count of 1,870 in 2001, there were an additional 960 jobs in the County which were dependent on local agricultural production. Total labor income with indirect and induced effects is about $45 million which includes direct agricultural production employment compensation of $25.5 million. Value added from agriculture, which includes payments by the agricultural sectors to workers, interest, profits and indirect business taxes added about $71.6 million to the County economy in 2001.

Regarding taxes, the IMPLAN estimate is that the seven agricultural production sub-sectors generated about $1.5 million in business taxes for the county and state in 2001. These taxes include sales, business and occupation, property, excise, licenses and other taxes paid by the normal operation of businesses. Through the inter-industry linkages of agriculture to other sectors of the Pierce County economy and the induced effects, production agriculture also generated an additional $4.1 million in indirect business tax revenue.

COMPETITIVE ADVANTAGES OF SERVING LOCAL MARKETS

Agricultural producers in Pierce County have several key advantages in serving customers who reside in Pierce or neighboring counties. First, they have the opportunity to regularly meet and know their buyers and final customers. They have the advantage in tailoring their products and services to the consumer. Second, suppliers can emphasize that they have common interests with buyers. This includes providing the freshest possible products, supporting local businesses and other common concerns. This builds added loyalty. In these ways, Pierce County agricultural producers can link up with a segment of the consumer market whose product preferences are not as well met by non-local suppliers.

Another specific advantage: transportation costs. At current diesel fuel prices (as of October 2005) the freight cost of a truck-load shipment of fresh produce from California had recently increased by $1,000 per load. If this cost of fuel remains high, local farmers may soon become more cost-competitive with large, out-of-state suppliers.

A final direct competitive advantage of local products relates to helping retailers distinguish themselves from their competition. The largest supermarket firms use central warehouse and delivery systems that feature mass-volume products. For consumers who seek fresh products or unique products such as organic or sustainable foods, sourcing from local farmers and processors allows small supermarkets to offer different products, and attract customers to their businesses. In this case, the producer and retailer, as well as the ultimate consumer, are all best served.

COUNTY DEMOGRAPHICS AND WILLINGNESS TO BUY LOCAL FOODS

The main market outlets for Pierce County agricultural producers and processors are locally based, and this is likely to remain so in the future. Indeed, the future economic viability of local farming will be closely associated with the growth in demand by Puget Sound consumers for local foods. The demographic characteristics of Pierce County residents are the starting point for determining the future character and size of the County's agriculture. Key demographic factors are summarized in Table 6.

Pierce County has a growing and increasingly more affluent population. They form an important foundation for local food demand. From 2004 to 2009, the population is forecast to increase by 61,650.[15] The most significant population growth is expected to be in the 55 to 64 age group, which traditionally has significant income growth, as well as the propensity to eat more foods at home and is increasingly health conscience. This bodes well for expanding consumption of local foods including fresh and processed products.

Other middle age groups are also forecast to expand (including 45-54 year olds). This is also an indicator that local food demands can be expected to increase relative to the present level.

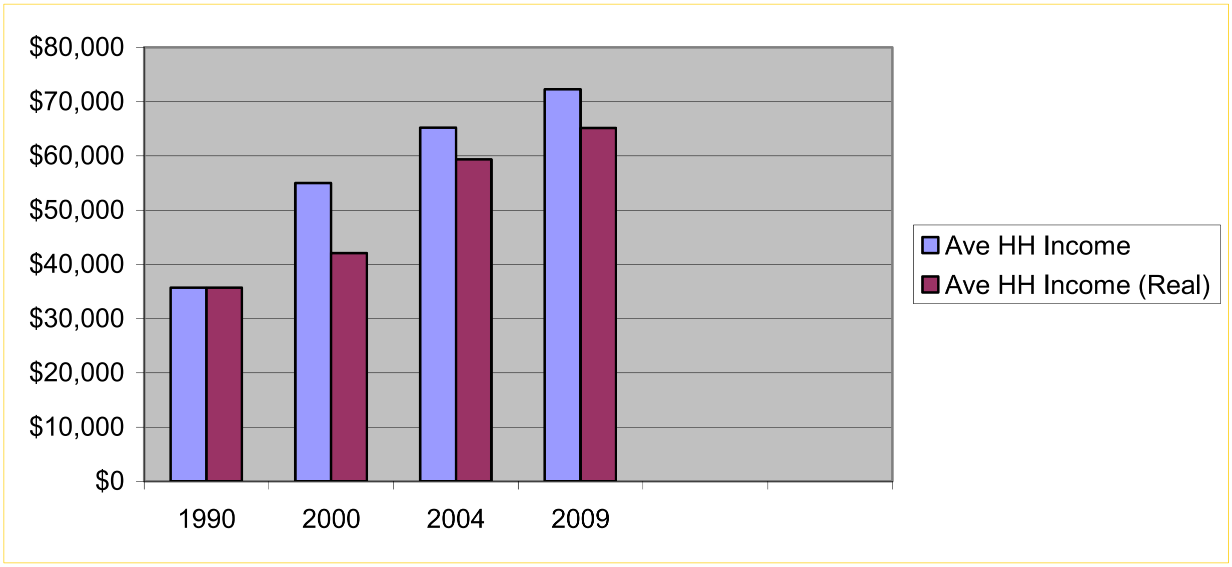
[15] Demographics.Com by SRS LLC, 2005.

Table 6 – Pierce County Demographic Snapshot: 2004	
Demographic Factor	Value
Population	753,000
Households	281,600
Average Household Size	2.67 persons
Median Age	34.8 year & rising
Ethnicity	78% White,7% Hispanic, 5% Black, 5% Asian
Educational Attainment	30% High School Degree, 29% Post Secondary Degree
Average Household Income	$65,200

Source: Demographics.Com by SRS LLC, 2005.

Income is also a key factor in establishing the level of local food demand. Rising real (inflation adjusted) income will result in increased consumption of higher quality and higher priced foods, especially fresh foods from the local area. Pierce County household incomes are steadily rising in both current price and real terms. In current dollars, the 2000 average household income was almost $55,000 and it rose to $65,200 in 2004. In constant 2004 dollar terms, the average household income increased by $9,300 from 2000 to 2004. Figure 1 shows the trend in County average household income in current dollars, and in inflation adjusted terms for 1990, 2000 and 2004 along with a forecast for 2009.

Figure 1 - Household Income in Pierce County: Selected Years from 1990 to 2009



Source: Demographics.Com by SRS LLC, 2005.

One demographic trend that does not bode well for increasing demand for local foods is the educational attainment of Pierce County residents. Higher levels of education are positively correlated with consumer decisions to buy local foods. The proportion of the County population graduating high school or earning post secondary degrees has been static from 1990 to 2004, and is forecast to remain so through 2009.

Local demand for Pierce County agricultural products is not limited to only Pierce County consumers. In this regard, the greater Puget Sound region is the market for Pierce County growers and processors. The 2004 population of Pierce, King, Kitsap and Thurston counties totaled just under 3 million. Average household income for this four county group was $72,700 in 2004. The four-county population growth from 2004 to 2009 is expected to grow by 135,000.[16] These are indicators of near-term potential for regional sales growth for Pierce growers if they compete for this business. A market opportunity of this size naturally also attracts competitors in other counties to serve this growing demand.

The demographic factors show that demand growth will be greatest within the Puget Sound region, but outside of Pierce County. This market for local agriculture products should be carefully considered by any new or expanding grower in Pierce County.

PRODUCTIVITY INDICATORS FOR COMMERCIAL AGRICULTURE

Since the 1960s, there has been a trend toward farm consolidation in the U.S, resulting in increasing average farm size. The Pierce County analysis shows larger traditional farms are in decline, with the conversion of land to development uses. This section looks at productivity indicators of farms, to evaluate if the remaining farms and new, smaller farms can be competitive.

[16]Demographics.Com by SRS LLC, 2005.

A publication on business opportunities for small farms in Oregon provides useful data on gross farm returns.[17] Table 7 presents the per acre data from that publication for establishment cost, annual cost and gross returns for relevant crops produced in Pierce County.

Table 7 must be evaluated with care. If it is assumed the direct operating expenses are 50 to 60 percent of gross sales, the remaining margin must cover the operator's management and risk, and land costs (principal and interest on the mortgage or the opportunity cost represented by using the land for agricultural production). The high opportunity cost of using land for agriculture, when its value is much higher for development, is a serious impediment to the long run viability of farming in Pierce County.

USDA analysis for 2003 (the only year of available data at the state level) shows that farmers had an average rate of return on assets of well under five percent. This rate of return on assets is lower in urbanizing areas like Pierce County where farmland values are rising rapidly. In strict economic terms, larger farms usually (but not always) have efficiency advantages over small farms. This efficiency is usually gained by spreading the fixed costs of operation over a larger amount of production and also utilizing equipment or other assets that save labor per unit of production.

Pierce County farmers who sell in the mass volume retail supermarket trade are competing against large farms that account for large shares of production in most crop categories. The largest fresh vegetable farmers in Pierce County report that their competitors are the major California produce farms and shippers who deliver fresh produce to the Pacific Northwest. Market conditions in the major out-of-state growing areas of California, Texas, Arizona and Florida establish the basis for the market prices paid by local produce distributors and retailers. As one stakeholder put it, "Pierce County farmers have been price followers, not price setters" at least in terms of selling at the national grocer level.

[17] What Can I Do with My Small Farm? Oregon State University Extension Service, EC 1529, March 2001.

Table 7 – Crop Production Costs and Returns Per Acre			
Enterprise	Establishment Costs	Annual Costs	Gross Returns/Year
Nursery Stock [2]	$3,000 to $20,000	$3,000 to $10,000	$10,000 to $30,000+
Flower Bulbs	--	$2,000 to $9,000	$4,000 to $14,000
Fresh Vegetables	--	$1,500 to $5,000	$2,000 to $7,000
Onions	--	$2,500 to $3,000	$1,600 to $5,000
Wine Grapes [2]	$7,000	$1,200 to $2,300	$1,800 to $4,000
Strawberries (3-year life)	$1,500 to $2,500	$2,000 to $3,500	$3,000 to $6,000
Raspberries (8 year life) [1]	$3,000	$1,700 to $2,800	$2,000 to $6,000
Blueberries [2]	$5,500	$2,000 to $4,000	$2,000 to $6,000
Christmas Trees [3]	$1,000 to $1,600	$600 to $800	$9,000 to $16,000
Grass Hay	--	$70 to $150	$100 to $180
Cow/Calf	--	$80 to $100	$70 to $200
Sheep	--	$100 to $500	$275 to $650

[1] It often takes 1 to 3 years before return.
[2] There is typically no return for 3 to 4 years after establishment. Costs vary with harvest requirements.
[3] There is typically no return until 6 to 8 years after planting. Most annual costs are concentrated in the last 3 years before harvest.
Note: "Annual costs" are an average per year over the production cycle. "Gross returns/year" is for the year of harvest. The estimates represent a range under normal conditions for commercial-quality crops. They do not include expenditures for equipment except structures for nursery production. They do not include weather-related crop loss or extreme price swings. These values are based on sales via wholesale markets and do not represent the higher gross receipts from direct marketing.
Source: What Can I Do with My Small Farm?, Oregon State University Extension Service, EC 1529, March 2001, page 5.

Pierce County farmers are almost always at a competitive disadvantage when in direct competition against larger farms selling substantially the same product in the mass supermarket trade. However, Pierce County farmers who produce unique crops or add value through innovations in marketing or processing can fill market channels and reach customers where there is substantially less competition or competitors have the same cost structure and cannot undercut the price of local producers. A unique crop may be different from the mass produced crops in some discernable trait the consumer values, such as freshness or the way the crop is grown, harvested or presented. A product with the desired traits is differentiated from mainstream crops and therefore sells at a higher price which can cover the higher costs of smaller growers in Pierce County.

NEGATIVE IMPACTS OF OPERATING NEAR URBAN CENTERS

It has been reported in western Washington that "tensions in fringe areas contribute to the wearing down of farmers who sometimes feel unwanted in urban areas." [18] From a recent survey of stakeholders and comments at Alderton-McMillin Planning Board meetings it appears this attitude clearly exists among a group of Pierce County farmers.

Interviews with farm community members and others have highlighted the serious incompatibilities between farmers and urban dwellers. Dense urban development is close to or even surrounds many agricultural producers. This close proximity is a serious and growing problem. Farmers tolerate the problems for the most part, but the nuisance factor is real and cause problems for agriculture. Recognition of the inherent incompatibilities between agriculture and close-by urbanization led to the passage of Pierce County's Right-to-Farm ordinance in 2001. This ordinance is important because it gives a measure of legal protection to farmers from lawsuits when they operate in accordance with normal and reasonable business practices.

A code enforcement officer in Pierce County who receives land use related complaints reports that in eight years, they cannot recall a single complaint lodged by residents about farmer activity such as dust or operating outside of normal business hours.[19] Similarly, the Pierce County Health Department has fielded very few complaints about agricultural activity.[20] Pierce County Sheriff's Department officers in two precincts also report they rarely receive calls from residents complaining about farmer activity. Nonetheless, farmers say that they hear complaints from neighbors about odors, dust, equipment noise from very early or late day operations, and from traffic slowdowns when farm equipment is moved on the roads. Farmers also report continuing problems with vandalism and theft, adding farmer costs and exacerbating conflict between farmers and urban dwellers.

SUMMARY AND CONCLUSIONS

We estimate there are 75 producers of food crops in the County who exceed an annual income of $20,000. There are another 30-40 growers who have ornamental plant crops and 5 to 6 commercial dairies in the County. The commercial livestock producers mostly raise beef cattle and horses but there are no accurate estimates of how many are actually commercial producers.

Pierce County has experienced a steady decrease in both number of commercial farmers and total acreage of land utilized for agricultural purposes. Some of the major and traditional agricultural crops and products have declined significantly, with prime examples being raspberries, rhubarb, and milk production. On the other hand, there remains a very diverse array of crops and livestock produced in the County, and a few new, smaller farms have recently entered the industry. The current level of organic production is but a small fraction of overall agricultural production in Pierce County. There are six growers who have a total of 137.5 acres in production in the County. See Task 4 for more discussion of this trend.

Rapidly rising land prices have harmed the farm sector in Pierce County. Farmers often choose to sell their land and take advantage of sudden and significant upward land prices brought about by surrounding

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[18] See A characterization of Puget Sound Agriculture: A Report to the Puget Sound Shared Strategy, by Dennis Canty and Helena Wiley, March, 2004, page 10.
[19] Personal conversation with Jennifer Conners, Pierce County Planning & Land Services, October 21, 2005. It should be noted that complaints about noise are handled by other staff.
[20] Personal conversation with Dave DeLong, Pierce County Health Department, October 24, 2005.

development. Selling price for buildable land in Pierce County is well over two or three times its value for agricultural use—and often much more.

One of the main advantages for Pierce County farmers is ready access to a growing urban consumer market. Market studies, such as the recent WSU analysis cited here, reveal a growing demand for local products, as consumers increasingly demand better access to fresh, safe foods. Population and income growth also point to greater demand within the Pierce County and greater Puget Sound market.

Farm profit and productivity studies show that agriculture will be challenged to generate enough income to support family farms now and into the foreseeable future. It will take very good management and a focus on customers willing to pay premium prices for most small farms to operate profitably.

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December 28, 2005 (Revised)

To: Rob Allen, Pierce County Economic Development Division

From: Barney & Worth, Inc. and Globalwise, Inc.

Subject: Pierce County Agriculture Strategic Plan
Task 3: Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

Agriculture in Washington and Pierce County is subject to the same competitive forces faced by producers and processors across the U.S. This task identifies and evaluates the major trends that present challenges and opportunities, particularly for small scale farmers and value added producers who operate on the urban fringe.

The SWOT (strengths-weaknesses-opportunities-threats) analysis is intended to serve as a summary document, highlighting the most important issues and trends expanded upon in other technical memoranda.

Pierce County Agriculture – *Strengths*

Pierce County agriculture has a number of fundamental strengths and competitive advantages, including:

- Excellent soils and a moderate climate, including limited reliance on irrigation, provide a solid set of natural competitive advantages.
- Pierce County farmers have immediate access to an enormous, relatively affluent urban market (with nearly 750,000 people living in Pierce County alone, according to 2004 US Census estimates).
- Transportation costs (to reach the Puget Sound market) are low relative to out-of-state, non-urban competition.
- Existing small-size farms and nurseries are succeeding; showing that farm businesses can succeed in Pierce County.
- Key market infrastructure is in place and scalable: farmers markets, CSA/subscription farming, direct on-farm sales and restaurant buying.
- Farms and nurseries have a network and cooperative attitude which gives new farms an immediate entry point to aid their business development.
- Pierce County political / institutional support mechanisms are in place and engaged: Farm Advisory Commission, WSU Center for Sustaining Agriculture & Natural Resources / Extension, Pierce County Conservation District, in concert with elected officials.

- Regional support programs and entities are available: e.g., Puget Sound Fresh, FarmLink, and various local farmers markets.

- Many high demand crops and livestock are produced in Pierce County: fresh vegetables, fresh fruits, poultry meat, eggs, beef, bedding plants and nursery stock to name a few.

Pierce County Agriculture – *Weaknesses*

Key weaknesses and challenges that impede Pierce County agriculture's economic viability include:

- Land is costly.

- Capital needs and risks are significant limitations for beginning farmers.

- Availability of rent/lease options and/or high payment levels are also a hindrance.

- Protection of farmers and farmland requires ongoing planning and zoning safeguards. Zoning codes and their enforcement have not been effective in keeping farms and nurseries separated and protected from urban encroachment.

- Little is known about the buying preferences of Pierce County residents for local agriculture, how much market demand growth potential exists for local food and nursery crops, and whether local shoppers are ready to shift more consumption to local products (which often sell at higher prices compared to high volume conventional sales outlets).

- The linkages of farming and agricultural land conservation to broader public benefits – such as water quality protection, open space value, and food security – are not readily quantifiable and not well-promoted community-wide.

- A lack of readily-available and well-promoted technical training in production, marketing and business management prevent some new and marginally profitable farmers from turning the corner.

- Global and out-of-state competition is increasing, impacting prices, market access and other factors that affect profit margins.

- Labor is increasingly scarce, with penalties for utilizing undocumented migrant workers becoming more severe.

- There is a diminishing supply of farm infrastructure, including cold storage facilities, processing/packing plants and implement dealers.

- A strict regulatory environment adds to farm costs and reduces profit margins (e.g. engineering plans required for farmstands).

- Encroaching urbanization limits normal farm operations (e.g. tractors on road, smoke, spraying, manure application, etc.)

Pierce County Agriculture – *Threats*

A number of impending challenges may create new or exacerbate existing barriers to economically viable agriculture in Pierce County. These barriers include:

- A critical (minimum) threshold amount of land and number of farmers are needed; otherwise the industry loses options to sustain itself and grow.
- The cost of meeting an increasing array of environmental protection measures is rising and is beyond most individual farmers' ability to pay. Public and private funding may not be sufficient to cover future costs.
- Agricultural infrastructure may continue to decline (supplies, services, and expertise).
- Technical assistance offered locally appears to be less and less relevant to commercial operators.
- Many of Pierce County's long-time farmers are nearing retirement, with few indicating they have a "succession" plan. A capable new generation of farmers is needed to step forward to accept the risks.
- Available land and parcel sizes are often not suitable for growing profitable, high-demand crops.
- Cheap imports, large-scale domestic farms and processors, and consolidated food retailers bring low cost foods to time- and money-strapped consumers, allowing local residents to quite easily overlook local agriculture offerings.
- The County's current use tax program, which has provided necessary tax relief for years, may no longer provide enough incentive to offset the sharply rising "opportunity cost" faced by farmers with land in urbanizing areas.
- Residential neighborhoods encroaching in agricultural areas are increasingly limiting what techniques and activities farmers can employ to produce food (e.g. burning, pesticides, etc.).
- An increasing number of farmers report being "in the red" for longer periods of time, raising concerns among lenders and creditors.
- The consolidation of major markets, along with the need to increase inventory efficiencies, has led many corporate wholesalers to do business with out-of-area producers that benefit from longer growing seasons and a more stable food supply.

Pierce County Agriculture – *Opportunities*

Observers suggest, and research indicates, that Pierce County agriculture may benefit from a number of emerging opportunities. These include:

- Close proximity to the Puget Sound's growing urban population is a natural and targeted market opportunity.

- Farm and land protection fit with the public policies and priorities of "green and sustainable living and commerce", which is gaining broader local / regional / national support.

- A policy to support local farms also offers healthy choices and increases food security for low-income and other disadvantaged populations.

- Currently, a very small portion of what is grown locally is consumed locally, indicating a tremendous market growth opportunity for selected products.

- Pierce County can join other Puget Sound governmental, non-profit and private efforts to be a stronger voice for further local and state-wide policies to link the region's farmers to agricultural land protection.

- The planning/zoning functions are being considered in the broader context of farm viability.

- Local government (city and county) can further "look to itself" to procure local foods and nursery crops, and ensure its own practices support local agriculture.

- Increasing attention is being paid to programs that assist farmers with business planning and marketing.

- Existing programs such as Washington State's Women, Infant and Children (WIC) program, Pierce County's *Healthy Choices Initiative* and others are laying the foundation for "buying fresh/local" and may offer excellent partnership opportunities.

- There is a growing list of individuals/families looking to enter farming in Pierce County. If land costs can be addressed, there is good potential the land can be kept in farm usage.

- Vertically integrated value added processing could be expanded to assist farmers secure more profit.

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December 28, 2005 (Revised)

To: Rob Allen, Pierce County Economic Development Division

From: Bruce Prenguber, Globalwise, Inc.

Subject: Pierce County Agriculture Strategic Plan:
Task 4: Agriculture Industry Trends

Agriculture in Washington and Pierce County is subject to the same competitive forces faced by producers and processors across the U.S. This technical memorandum identifies and evaluates the major trends that present challenges and opportunities, particularly for small scale farmers and value added producers who operate on the urban fringe.

Major Issues Facing Washington Agriculture

Agriculture in Washington has been facing a sustained series of changes and challenges. Major agriculture sectors here – such as fruit and vegetable production and processing, and beef production have been in general decline since the mid-1990s. Two reports conducted by noted economists chronicle the key challenges of Washington agriculture.[1]

Following is a summary of the key issues they identify:

- Worldwide restructuring of food markets has been well underway since the 1990s. leading to increased *global competition*. China, Canada, Mexico, and competitors in many other regions of the world have expanded their production of food and agricultural crops and also processing and distribution. Aided by efficient ocean, rail and truck shipping systems, many countries are now strong international competitors in food production and marketing. These competitors are challenging U.S. producers and processors in both domestic and international markets.

- A parallel and significant trend along with global competition is the *concentration in food retailing*. Retailers have been able to reduce their costs by internal growth, mergers and acquisitions. In turn, this has encouraged a similar response of growth and concentration by food processors and farmers. A special difficulty for smaller growers and processors is that large processors and marketing companies have been integrating their operations with the mega-retailers. For example, retailers such as Wal-Mart have required suppliers to implement such business practices as electronic data interchange. This favors larger producers and processors who have greater resources and better access to technology to meet these retailer requirements. Larger suppliers also have the volume of production and consistency of supply that more closely match the needs of the mega-retailers.

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[1] See "Restoring Competitiveness of Washington Agriculture" by Dr. Desmond O'Rourke, Belrose Inc., October, 2004 and "Consolidation and Change in the Washington Agri-Food Complex" by Robert Chase, Chase Economics, September 1999.

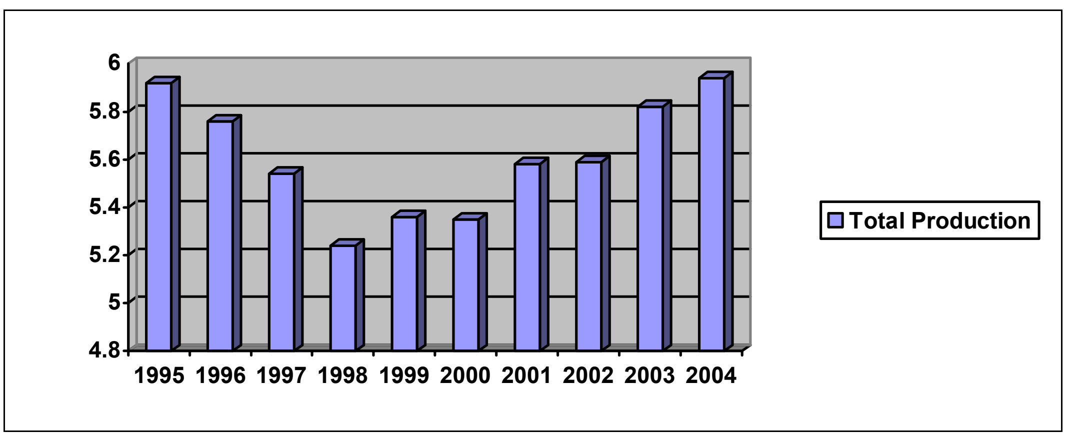
- The *traditional comparative advantages* that Washington agricultural producers have enjoyed in the past are shrinking, or are gone all together. From the 1960s to the 1980s agriculture in Washington and other western states experienced a "golden era". Washington had abundant hydro-power and irrigation water to supply a rapidly expanding agricultural production complex centered in Eastern Washington. Water, land and energy prices were among the lowest in the U.S. In addition, research at the region's land-grant universities was quickly adopted by local farmers and provided an immediate technological edge over competitors in other countries. Beginning in the 1980s and continuing into the 1990's, these advantages changed significantly. Competing demands for resources, environmental protection concerts and stricter water quality regulations have led to new priorities, resulting in Washington experiencing higher costs for production inputs, in both absolute and relative terms in relation to competitors.

The bottom line result of these factors is that the value of total Washington agricultural production at the farm level went into steep decline during the mid 1990s. This decline has been the direct result of new and stronger world competition in food production. In recent years, however, the value of production has slowly returned to 1990 levels due to reasons laid out below.

Value of Agricultural Production in Washington

Agricultural production in Washington was $5.92 billion in 1995.[2] It declined steadily from 1995 to 1998 and then reversed trend to show recovery up through 2004. Washington's total production in 2004 returned to approximately the same level as in 1995 (see Figure 1). The dip in production value experienced during the late 1990's is largely attributable to Washington agriculture's dependence on export markets. While strong in the mid-90's, economic troubles in Asia and increasing competition from other countries and states led to fewer external sales of Washington-grown products until markets stabilized again beginning in 2001.

Figure 1 - Total Value of Washington Agricultural Production, 1995-2004 ($ billions)



Source: 2005 Washington Annual Statistical Bulletin, Compiled by the USDA/National Agricultural Statistical Service, Washington Field Office, Olympia, Washington.

[2] Value of production statistics for this section of the report are from the Washington Annual Statistics Bulletins for various years.

The value of production in Washington's vegetable sector was erratic from 1995 to 2004. The peak year occurred in 2003. Much of the reason for unstable vegetable sector year-on-year growth can be attributed to the loss of potato production which has shifted to other regions, both in the U.S. and abroad.

The total value of berry crops in Washington was also on a roller coaster from 1995 to 2004. The peak year in this period was 2004; the low point in 1998. Since 2000, the trend has been decidedly up. However, Pierce County has not shared in this growth.

Statewide, specialty crops including forest products, Christmas trees, floriculture,[3] nursery and others were in steady decline in Washington for most of the period from 1995 to 2004. This is partially explained by the decline of on-farm timber sales and other forest products output. However, within the "green industry" (nursery/greenhouse crops), there has been an upward trend in production. For example, in 1996 nursery and green house crops totaled 245 million in sales. In 2004 the nursery and greenhouse sales were up by over 33 percent to almost $329 million.[4]

The value of livestock and livestock production has also been very cyclical from 1996 to 2004. Although the state's dairy industry is still predominantly on the west side, the number of cows here is declining. During the 2000 to 2004 period the central and eastern regions of the state have had an increase in the number of milk cows. Statewide, milk production per cow was up in 2004 and largely offset the lower number of cows. In 2004 Washington dairies had record cash receipts for milk. Cattle and calves production on a weight basis has been on a steady decline over the 1994 to 2004 period, but beef prices per pound have been sharply up at the producer level. The total value of cattle and calves production in the state has been very erratic, with 2000 showing the highest value during the 10 year period. Chickens produced for meat production in Washington have been steadily declining from 1995 to 2004. Total egg production has been in decline from 1995 to 2000 with the recent trend in egg production being relatively flat.

In the last ten years, only two agricultural sectors in Washington have distinguished themselves with strong and steady upward growth: the wine industry and nursery crop production. Pierce County has virtually no wine production but it is a major producer of nursery crops.

Number and Size of Farms in Washington

National Agricultural Statistics Service (NASS) data uses the U.S. Department of Agriculture (USDA) definitions of a farm – any agricultural operation that produces $1,000 or more in sales per year. Using that broad definition, Table 1 shows the statewide statistics for the number of farms, average farm size and total acres in farms for Washington for 1995 to 2004.

[3] The cultivation and management of ornamental and flowering plants.
[4] The sales data in this paragraph is from the Washington Agricultural Statistics Annual Bulletin prepared by the Washington Agricultural Statistics Service.

Table 1 –Number, Average Size & Acreage of All Farms in Washington: 1995-2004			
Year	Farms (#) [1]	Average Size (Acres)	Total Acreage (1,000 Acres)
1995	38,000	416	15,800
1996	39,000	403	15,700
1997	39,000	403	15,700
1998	40,000	393	15,700
1999	38,000	393	15,700
2000	37,000	393	15,700
2001	36,500	422	15,400
2002	36,000	426	15,350
2003	35,500	431	15,300
2004	35,000	434	15,200

[1] All farms = farms with $1,000 + in annual sales, or which normally have sales at this level or higher.

Source: 2005 Washington Annual Statistical Bulletin, Compiled by the USDA/National Agricultural Statistical Service, Washington Field Office, Olympia, Washington.

By this very broad definition, the estimated *number* of farms increased from 1995 to a peak in 1998. The number started to decline and is estimated to decline annually from 1998 through 2004. Looking over a longer span of time, the number of farms in Washington has shown a clear downward trend for most of the latter half of the twentieth century.

In the annual data for reporting the number and size of farms, NASS recently changed its classification of economic size (sales categories). This means the number and size of farms by the same size classification cannot be compared over time. The agency began reporting on the number of farms with annual sales of over $500,000 annually from 2002 to 2004. In those three years, NASS is estimating that the number of farms in this category has remained stable at 2,100 statewide. It is also estimated that the total acreage farmed by these large farms has been increasing, going from 5.59 million farmed acres in 2002 to 5.70 million in 2004. The 2004 estimate is that the average *size* of these large farms is 2,715 acres. The Economic Research Service of USDA estimates that 1,100 farms in Washington had annual sales of $1.0 million or more in 2003.[5]

Contraction in the Number of Food Processors

Washington had an estimated 188 food processors as of March 2004.[6] This data has not been consistently tracked year by year over the last decade. Data compiled by the Northwest Food Processors Association (NWFPA) in conjunction with the Washington Department of Community, Trade and Economic Development shows that 24 food processing plants have closed in Washington in the last ten years. These include a wide range of processor types, including fruit and vegetable packers, seafood processors, and dairy product processors. There have been partial closures and employment lay-offs at another four processing facilities. Some pre-existing

[5] See http://www.ers.usda.gov/data/arms/app/States.aspx.

[6] Benchmark analysis for the Northwest Food Processors Association by Globalwise, Inc., March 2005.

plants have been re-opened by new owners, but the industry's major trade association has not identified any new major food processors (firms with over 50 employees) that have built new plants in Washington in the last five years.[7] This does not include wineries, a sector in which there has been new plant construction and operations.

Organic Crop Acreage

Washington is a leader among states with acreage dedicated to the production of organic crops. Data on the estimated acreage for certified production for 1997 and 2004 is given in Table 2.

USDA ranked Washington second among all states in the U.S. for organic farm acreage in 2001. California had about four times more organic acreage than Washington, but Washington held a solid second position among the 50 states. The switch to organic production in Washington may be slowing down. One of the main sources for expansion of organic acreage is "transitional lands", which are lands where past non-organic cultural practices has been halted for a period of years as required to become fully certified for organic production. In 2004, Washington's transitional acreage totaled 5.5 percent of the total certified acreage (2,234 acres of transitional land out of 40,245 certified acres). This rate of expansion via transitional acreage indicates a slowdown in adding new organic acreage to the state's cropland and pasture base.

Table 2 – Organic Crop Acreage in Washington: 1997 & 2004

Crop Type	Certified Acreage in 1997	Certified Acreage in 2004	Transitional Acreage in 2004
Vegetables	3,140	9,971	19
Tree Fruit	2,978	9,468	1,220
Forage (Hay, Silage, & Pasture)	1,817	8,400	586
Grains & Beans	2,027	5,435	239
Small Fruits & Nuts		2,528	164
Herbs & Mixed Horticulture	850	1,079	1
Other Crops & Greenhouse/Nursery	646	372	5
Other Land			
Fallow/Idle		2,562	
Timber/Woods		430	
Total	11,458	40,245	2,234

Sources: 1997 data is from U.S. Organic Farming Emerges in the 1900's: Adoption of Certified Systems, by Catherine R. Greene, U.S. Department of Agriculture, Economic Research Service, Agriculture Information Bulletin 770, June 2001; 2004 data is from Estimated Certified Organic Agriculture and Livestock in Washington State -2004 by David Granatstein, Elizabeth Kirby and Chris Feise, Center for Sustaining Agriculture and Natural Resources, Washington State University, Wenatchee WA.

[7] Personal communication with executive management of NWFPA, July, 2005.

Pierce County Agricultural Trends

The National Agricultural Statistics Service (NASS) of USDA cooperates with the Washington Department of Agriculture to collect and report data at the county level. Published annual data is very limited on crop production for Pierce County because of disclosure problems stemming from the relatively small pool of producers in Pierce County that grow reported crops.

The U.S. Census of Agriculture, which is conducted every five years, is the only historical time series of data that tracks most descriptive indicators of change in agriculture at the county level, and is thus the primary source for the information in this report section. Where applicable, in the following paragraphs the author has noted discrepancies between what Census of Agriculture data shows and the views of key stakeholders in Pierce County.

Number of Pierce County Farms and Their Size

Table 3 below presents the Census of Agriculture data on "all farms". This includes any farm that has sales of $1,000 or more per year. The data shows two opposing trends from 1992 to 2002: during the period from 1992 to 1997 the number of farms declined, but then from 1997 to 2002 there was a complete reversal with the number of farms significantly increasing. A plausible explanation is that the number of very small non-commercial farms rose rapidly. On-the-ground observations by farmers in Pierce County indicate the number of commercial farmers has declined significantly. The Census of Agriculture also reports that the total acreage in all farms followed the same pattern as the number of farms. Again, this is at odds with the conventional view that commercial farmland has been steadily disappearing in the County.

The Census of Agriculture reports an estimated 57,200 acres of farm land in Pierce County in 2002. This differs significantly from reports prepared using the Pierce County "CountyView" land use data system.

Table 3 – Total Number, Average Size & Acreage of All Farms in Pierce County: 1992, 1997 & 2002

Year	All Farms (Number) [1]	All Farms Average Size (Acres)	Total Acreage in All Farms
1992	1,059	55	58,750
1997	989	51	50,868
2002	1,474	39	57,224

[1] "All farms" are farms with $1,000 or more in annual sales or farms which normally have sales at this level or higher.

Source: 1992, 1997 & 2002 Census of Agriculture - County Data.

The average size of a farm parcel in Pierce County is trending downward. Table 4 shows Census of Agriculture data for the number of farms by acreage groups.

Table 4 – Farms by Size for All Farms in Pierce County: 1992, 1997 & 2002			
Size of Farms (Acres)	1992	1997	2002
1 - 9	321	311	527
10 - 49	483	435	662
50 - 179	205	198	237
180 - 499	37	36	38
500 - 999	7	6	7
1,000 or more	6	3	3
Average Farm Size	55	51	39

Note: "All farms" are farms with $1,000 or more in annual sales, or farms which normally have sales at this level or higher.

Source: 1992, 1997 & 2002 Census of Agriculture - County Data.

Over the 10 year period spanning 1992 to 2002, the number of farms ranging in size from 1 to 49 acres increased significantly. The number of farms ranging in size from 50 to 499 acres also grew. However, the average size of farms in Pierce County declined from 55 acres to 30 over the ten year period in question. This trend toward land *intensive* agriculture favors certain types of farming. For example, greenhouse nurseries require much less land to generate the same or more revenue that a land *extensive* operation, such as traditional row cropping. The latter are generally more likely to be targeted for non-agricultural development.

Table 5 shows the trends in non-commercial and commercial farms in Pierce County for the five year span of 1997 to 2002. The Census of Agriculture did not report at the $20,000 level in 1992, so no data is available. The number of these non-commercial farms (using our definition of farms with less than $20,000 in annual sales) decreased from 1997 to 2002. In the 1997 to 2002 period there was a slight gain in the number of farms reporting sales of $100,000 to $249,999 but in all other categories of sales, there were fewer farms. In summary the Census data in Table 5 for 1997 to 2002 shows that the number of farms in all sales categories above $20,000 is decreasing – but quite slowly. This is counter to the general view among Pierce County observers that commercial farms of all sizes are rapidly disappearing. A possible explanation is that the Census of Agriculture does not provide information after 2002, and this could be when much of the loss of farms occurred.

Table 5– Number of Farms in Pierce County by Market Value of Agricultural Products Sold: 1992, 1997 & 2002			
Value of Sales	Number of Farms in 1992 [1]	Number of Farms in 1997	Number of Farms in 2002
$0 to $19,999	NA	1,408	1,158
$20,000 to $39,999	NA	64	59
$40,000 to $$99,999	NA	56	50
$100,000 to $249,999	NA	24	30
$250,000 to $499,999	NA	26	22
$500,000 or more	NA	38	36
Number of Commercial Farms	NA	208	197

[1] Different sales classifications were reported in 1992 compared to 1997 and 2002. Therefore, comparable data for 1992 cannot be reported.

Source: 1997 & 2002 Census of Agriculture - County Data.

The trend in production by type of crop is not reported annually for Pierce County in NASS, due to the potential to disclose proprietary business information. The Census of Agriculture does report the number of farms which grow various categories of crops, but this data is not given by size of farm operator.

Table 6 shows Census of Agriculture data on the number of all farms growing various crops (which include non-commercial farms under $20,000 in sales) as well as commercial farms. The Census data appear to be contradictory to the observations of key stakeholders in Pierce County who report continuous declines in the number of commercial farmers. The information developed earlier for this study (in Task 2), provides a more accurate picture of the true number of commercial farmers in Pierce County, because it is drawn from many sources and it is validated by observations and information provided by local farmers.

Table 6– Type of Agricultural Products Produced on All Farms in Pierce County: 1992, 1997 & 2002

Type of Agricultural Production	Number of Farms in 1992	Number of Farms in 1997	Number of Farms in 2002
Vegetable Farming	34	43	68
Fruit Farming	26	39	72
Grain Farming	1	1	13
Greenhouse, Nursery, & Floriculture Production	57	121	151
Other Crop Farming (Especially Hay)	NA	NA	107
Beef Cattle Ranching & Farming	41	324	396
Dairy Cattle & Milk Production	40	24	17
Hog & Pig Farming	NA	25	24
Poultry & Egg Production	14	21	19
Sheep & Goat Farming	NA	28	80

Source: 1992, 1997 & 2002 Census of Agriculture – County Data.

Food Processing

Analysis conducted in Task 2 shows that Pierce County has about 20 food processors. However, many of the largest of these have little or no relation to local growers. There is no data to show the historical trend in the number and type of food processors in the County. Local growers of raspberries have commented that the closure of local berry processing facilities has been harmful. Without food processors, local growers must rely on fresh markets with no economically viable outlet for lesser grade or surplus fruit, which deprives them of an additional revenue source.

Organic Farming

The latest data on the crop and pasture land certified in the Washington State Department of Agriculture's organic program shows that there is 137.5 acres in organic production in Pierce

County. Other certification agencies may have certified land for other growers.[8] The WSDA certified acreage is a small fraction of the total agricultural land in Pierce County. Out of 28,890 acres in agricultural use in Pierce County, the organic acreage in the County which is certified by WSDA is less than one half of one percent.

Some non-organic growers follow sustainable practices and sell directly to their customers at farmers markets, roadside stands, and elsewhere. This allows the farmers to reach consumers who want local foods that offer an alternative to conventional products but do not necessarily choose certified organic products. Yet up to this time, the data doesn't point to a major shift among Pierce County growers converting to organic production methods.

Parcel Size

The trend in average farm size is a proxy for the trend in parcel size. The Census of Agriculture shows a steadily declining average farm size in Pierce County. In 2002 the average farm size was 39 acres. This is trending downward, from 55 acres average in 1992 and 51 acres in 1997.

Financial Performance of Farms

The Census of Agriculture collects data on total revenues and financial returns to farmers. Pierce County data is summarized in Table 7. The Census of Agriculture reports the value of agricultural products sold and gives a snapshot of total farm income. In 1992 the estimated total value of agricultural products sold was $85.1 million. Total value dropped to $69.8 million in 1997 and it rose sharply in 2002 to $94.2 million. This shows the high variability in income over time, but an overall pattern of growth between 1992 and 2002. These estimates are in current dollars (not adjusted for inflation changes).

Table 7 – Financial Indicators for All Farms in Pierce County: 1992, 1997 & 2002

Financial Indicator	1992	1997	2002
Market Value of Agricultural Products Sold (Million $)	$85.09	$69.84	$94.17
Net Cash Return for Agricultural Sales (Million $)	$7.81	$9.50	$21.93
Average Cash Return per Farm	$7,380	$9,610	$14,840

Source: 1992, 1997 & 2002 Census of Agriculture – County Data.

[8] See http://www.ams.usda.gov/nop/CertifyingAgents/Accrdited.html for a list of third party organic certification agents that are accredited by USDA for the National Organic Program.

Agricultural Projections

USDA projections are a general indicator of "what to expect" based on calculations from the top agricultural economists in the federal government. The baseline forecast to 2014 is briefly highlighted here.[9] The USDA projections focus on the eight major field crops produced in the U.S. (wheat, corn, rice, barley, oats, soybeans, cotton and sorghum) and the major livestock categories (beef, hogs and poultry). The horticultural crops category encompasses the crops of interest in Pierce County. These projections are directional trends for broad product categories.

Regarding horticultural products (including fruits and nuts, vegetables, and greenhouse and nursery products), the U.S. is projected to have consumer demand growth. The U.S. is projected to see continued strong growth in imports of horticultural products. In fact, the projection is for the U.S. to become more dependent on imports of horticultural products between now and 2014.

Tables 8, 9 and 10 show the U.S. is projected to expand production of fruits, vegetables and nursery crops to meet growing future demand. These tables also show that imports are expected to rise faster than exports and foreign products are increasingly relied upon to serve the total food and nursery crops demands of the U.S. In other words, the projection is that the U.S. will continue to import substantially more than it exports in these products. By 2014 the projection is that the U.S. will have net imports totaling $2.34 billion in non-citrus fresh and processed fruits, over $4.0 billion in net imports of vegetables, and $1.59 billion in net imports of nursery products.

The USDA projections anticipate the U.S. will continue to have a comparative disadvantage relative to other countries in the production of fruits, vegetables and nursery products over the next decade. Note that the assumptions used by USDA for all projections follow Table 12.

Table 8 – Baseline Projections of U.S. Fruit Exports & Imports, Selected Years ($ millions)

Item	2003	2004	2005	2009	2014
U.S. Production Value					
Non-citrus Fruit	8,486	8.741	9,003	10,133	11,747
U.S. Exports					
Fresh Non-citrus Fruit	1,499	1,548	1,594	1,794	2,080
Processed Fruits	666	769	780	828	892
Fruit Juices	658	703	724	815	944
U.S. Imports					
Fresh & Frozen Non-citrus Fruit	2,005	2,279	2,361	2,720	3,246
Processed Fruits	1,146	1,304	1,393	1,661	2,048
Fruit Juices	776	786	802	868	958
Net Imports to U.S.	**1,154**	**1,349**	**1,458**	**1,812**	**2,336**

Source: USDA Baseline Projections to 2014, USDA, Office of Chief Economist, World Outlook Board, Baseline Report OCE-2005-1, February 2005.

[9] See USDA Agricultural Baseline Projections to 2014, U.S. Department of Agriculture, Office of the Chief Economist, World Agricultural Outlook Board, Baseline Report OCE-2005-1, February, 2005.

Table 9 – Baseline Projections of U.S. Vegetable Exports & Imports, Selected Years ($ millions)					
Item	2003	2004	2005	2009	2014
U.S. Production Value					
Fresh Vegetables [1]	9,593	9,881	10,178	11,455	13,279
U.S. Exports					
Fresh Vegetables [2]	1.220	1,257	1,285	1,402	1,583
U.S. Imports					
Fresh or Frozen Vegetables [2]	3,319	3,667	3,977	4,668	5,613
Net Imports to U.S.	**2,099**	**2,410**	**2,692**	**3,266**	**4,030**

[1] Includes melons and processing totals for dual-use crops.

[2] Fresh vegetables include melons but exclude fresh potatoes, sweet potatoes and fresh mushrooms.
Source: USDA Baseline Projections to 2014, USDA, Office of Chief Economist, World Outlook Board, Baseline Report OCE-2005-1, Table 20, February 2005.

Table 10 – Baseline Projections for U.S. Nursery/Greenhouse & Floriculture Exports & Imports, Selected Years ($ millions)					
Item	2003	2004	2005	2009	2014
U.S. Production Value					
Nursery & Greenhouse [1]	15,193	15,302	15,557	16,625	18,072
U.S. Exports					
Nursery & Greenhouse [1]	259	286	291	315	348
U.S. Imports					
Nursery & Greenhouse [1]	1,216	1,363	1,581	1,761	1,944
Net Imports to U.S.	**957**	**1,077**	**1,290**	**1,446**	**1,596**

[1] Includes floriculture crops.

Source: USDA Baseline Projections to 2014, USDA, Office of Chief Economist, World Outlook Board, Baseline Report OCE-2005-1, Table 19, February 2005.

Table 11 presents the projections for production and trade in beef, pork and poultry. U.S. production is expected to rise in all three categories but the greatest growth is expected in poultry. The U.S. trade conditions are expected to improve slowly for the U.S. beef industry as it gradually recovers from the health concerns over BSE and the loss of U.S. export markets, particularly Japan. The U.S. is projected to remain a net importer of beef in all future years of the projection. Pork is a strong export meat category for the U.S., with major competitive advantages in pork production in the "big" pork states in the Mid-west. The U.S. is expected to remain a net exporter of pork throughout the projection period. In poultry, the U.S. is projected to have rising domestic production with virtually no imports and rising export trade. The U.S. has competitive advantage in poultry production.

Table 11– Baseline Projections of U.S. Beef, Pork & Poultry Production , Meat Exports & Meat Imports Selected Years (Million Lbs or Million Tons Carcass Wt)					
Item	2003	2004	2005	2009	2014
U.S. Production					
Beef (Million Lbs)	26,238	24,498	24,775	26,458	27,941
Pork (Million Lbs)	19,945	20,573	20,800	22,032	23,148
Chicken- Young (Million Lbs)	32,399	33,769	34,848	38,604	41,942
U.S. Meat Exports					
Beef (Million Tons, Carcass Wt.)	1,143	201	281	412	828
Pork (Million Tons, Carcass Wt.)	779	944	960	1,060	1,200
Poultry [1] (Mill Tons, Carcass Wt.)	2,435	2,248	2,479	2,724	2,926
U.S. Imports					
Beef (Million Tons, Carcass Wt.)	1,363	1,593	1,660	1,575	1,406
Pork (Million Tons, Carcass Wt.)	567	513	551	600	655
Poultry [1] (Mill. Tons, Carcass Wt.)	Nil	Nil	Nil	Nil	Nil
Net Imports to U.S. -- Beef (Mill. Tons)	**220**	**1,392**	**1,379**	**1,163**	**578**
Net Exports from U.S. – Pork (Mill. T.)	**212**	**431**	**409**	**460**	**545**
Net Exports from U.S. –Poultry [1] (M.T.)	**2,435**	**2,248**	**2,479**	**2,724**	**2,926**

[1] Poultry includes broiler chickens and turkeys only.

Source: USDA Baseline Projections to 2014, USDA, Office of Chief Economist, World Outlook Board, Baseline Report OCE-2005-1, Tables 23, 24, 25, 44, 45,& 46, February 2005.

Table 12 gives baseline projections for egg and milk production and trade projections for eggs. Production of both food categories will rise to meet greater total demand in the future. The U.S. is a net exporter of eggs, and this is a trend that is expected to strengthen as the projection period moves forward. The U.S. has large and highly efficient egg production operations, which gives rise to the competitive advantage in this product sector.

Table 12– Baseline Projections of Other Livestock Products Production & Exports Selected Years (Million Dozen or Billion Lbs)					
Item	2003	2004	2005	2009	2014
U.S. Production					
Egg (Million Doz.)	7,273	7,399	7,495	7,877	8,361
Milk (Billion Lbs)	170.1	173.7	176.4	186.4	195.2
U.S. Exports					
Egg (Million Doz.)	146	141	160	172	187
U.S. Imports					
Egg (Million Doz.)	13	14	14	14	14
Net Exports from U.S. – Egg (Mill Doz.)	**133**	**127**	**146**	**158**	**173**

Source: USDA Baseline Projections to 2014, USDA, Office of Chief Economist, World Outlook Board, Baseline Report OCE-2005-1, February 2005.

Economic assumptions underpin the USDA forecast and are crucial to the forecast outcome. The main assumptions are:

1. Economic growth: World economic growth is projected to strengthen from the slow growth of 2001-03, averaging over 3 percent through 2014. The baseline assumes that growth in the U.S. gross domestic product (GDP) slows from the high recovery rate in 2004, and moves toward a sustainable long run rate near 3 percent. Strong economic growth in developing countries of more than 5 percent annually is projected for 2006-14.

2. Population: Growth in global population is assumed to slow in the baseline, from an annual rate of 1.7 percent in the 1980s to an average of 1.1 percent over the projection period, with world population increasing by some 700 million between 2004 and 2014. Although slowing, population growth rates in developing countries remain above those in the rest of the world. As a consequence, the share of world population accounted for by developing countries increases from 80 percent in 2004 to 82 percent by 2014.

3. The value of the U.S. dollar: Continuing depreciation of the U.S. dollar is assumed through 2006. However, the dollar is projected to appreciate again starting in 2007. The strengthening of the U.S. dollar assumes that capital moves into the United States to take advantage of well-functioning financial markets and high expected long-term productivity growth.

4. Oil prices: From 2006 to 2009, real oil prices are projected to fall as supply and demand adjust to recent high prices and move the market to a more sustainable long-term balance. In subsequent years, crude oil prices are projected to rise slightly faster than the general inflation rate, as new oil discoveries as well as new technologies for extracting and refining oil allow for substantial demand growth with moderate energy price increases.

5. U.S. agricultural policy: The Farm Security and Rural Investment Act of 2002 (Farm Act) is assumed to continue through the projections period. The area enrolled in the

Conservation Reserve Program (CRP) is assumed to rise to 39.2 million acres from about 35 million acres currently.

6. Beef trade: The baseline assumes a gradual rebuilding of U.S. beef exports to Japan, reflecting the October 2004 U.S.-Japan beef trade framework agreement that will permit the resumption of beef trade between the two countries. A gradual recovery in U.S. beef exports to South Korea is also assumed. The projection also assumes that imports from Canada resume for slaughter cattle under 30 months of age and feeder cattle is assumed to begin in 2006.

7. International policy: The projections assume that all countries fully comply with all existing bilateral and multilateral agreements affecting agriculture and agricultural trade. The baseline incorporates effects of trade agreements and domestic policy reforms in place in November 2004, but does not incorporate any effects of agreements not formally ratified by that date. Domestic agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current path, based on the consensus judgment of USDA's regional and commodity analysts. In particular, economic and trade reform underway in many developing countries is assumed to continue.

The assumptions used in the USDA projections are largely "status quo" conditions. For example, energy price increases should moderate over most of the forecast period, trade policies do not vary from existing trade agreements, and economic growth is robust in the developing countries. If any of these conditions vary, trends may diverge from projections.

Other Research and Analysis

The future of Pierce County agriculture can also be viewed through the forward looking analysis and writings of economists and others.

Farming Food Chain

One of the most thought-provoking and challenging observers is Steven Blank, an extension economist at the University of California-Davis. Dr. Blank writes about the threats to American agriculture due to the constant squeeze on farm profits where the prices of food commodities and products are set in global trade while production costs are locally derived.[10] In his analysis, agriculture in the U.S. has constantly moved up the "farming food chain" from low value annual crops such as grains to higher value crops. The fourth stage (highest) in this typology is high-value perennial crops. The farmers are responding to the lack of profitability in lower value crops, but they must also accept more risk when they move to perennial crops such as raspberries which have high capital and operating costs for planting, trellising and plant care, while the first crop comes several years after planting. Because of the long lag between planting and when harvests occur, and the many years of production once perennial crops begin bearing, expected profit levels may not be achieved. Indeed, farmers often remain in production when prices are low due to the fixed nature of their investment.

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[10] See A Portfolio of Threats to American Agriculture by Steven C. Blank, in Contemporary Economic Policy, Volume 20, No. 4, October 2002, pages 381-393. Much of the discussion here of Dr. Blank's views are from this article.

Dr. Blank also dismisses the view that only the most efficient farmers remain in agriculture. He believes that being efficient is not sufficient, and that being profitable and meeting the prices of all direct competitors is still not enough. Farmers must also accept agriculture's low returns on investment for long-run survival.

In the case of a highly urbanizing area, many farmers are especially challenged. They often face a profit squeeze from their annual operations while they realize no current income from their land asset. Furthermore, by selling their farmland they can leave the risks and low returns that often occur due to year-to-year fluctuations in both prices and their farm production.

Non-Economic Value of Farming

Economists and others also discuss the "public goods" nature of farmlands.[11] These amenity-based services such as preserving open space, maintaining a rural lifestyle, or protecting groundwater are in addition to the market-based benefits of producing the food for consumption and supporting local farmers. These public goods are largely outside of the market, as anyone who wishes to enjoy these can do so without direct payment.

Agricultural lands near urban areas often have heightened attention given to their amenity value since other residents are in close proximity and have direct access. Also, as the amount of agricultural land becomes scarcer, there is more amenity value generated by the remaining land.

Dr. B. Delworth Gardner has outlined a framework for economic analysis of agricultural land preservation.[12] He argues that if production of food is the only goal and markets are competitive, then the market alone can optimally allocate agricultural land. However, Dr. Gardner acknowledges that agricultural land often produces joint products (i.e. food and other amenities) with no market price for the amenity products. In that case, the market for land does not result in an optimal allocation of the land resources. He cites four joint products from agricultural land: 1) sufficient food and fiber to meet the nutritional requirements of a growing national and world population; 2) local economic benefits that derive from a viable agricultural industry, 3) open space and other environmental amenities that accrue chiefly to urban residents; and 4) more efficient, orderly and fiscally sound urban development.[13] In this case, intervention in the land market is warranted.

Farming on the Urban Edge

USDA research on agriculture on the urban fringe reveals that conditions facing farmers in Pierce County are not unique in many respects.[14] For example, the USDA analysis reported on research which found: "Farms in metro areas are generally smaller, produce more per acre, have more diverse enterprises, and are more focused on high-value production than non-metro farms."[15]

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[11] What Are Farmland Amenities Worth? by Elena G. Irwin, Cynthia J. Nickerson and Larry Libby, Department of Agricultural, Environmental and Development Economics, Ohio State University, unpublished and undated paper.

[12] The Economics of Agricultural Land Preservation by B. Delworth Gardner, American Journal of Agricultural Economics, December, 1977, pp. 1027-1036.

[13] Ibid., p. 1028-1029.

[14] Development at the Urban Fringe and Beyond: Impacts on Agriculture and Rural Land, by Ralph E. Heimlich and William D. Anderson, Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 803, June 2001.

[15] Ibid., p. 40.

This report goes on to explain that "Metro agriculture is characterized by a relatively large group of recreational farmers who are availing themselves of opportunities in both farm and non-farm pursuits, a smaller group of more adaptive farmers who have accommodated their farming operation to an urban environment, and a residual group of more traditional farmers who are trying to survive in the face of urbanization."[16]

The USDA researchers adapted definitions on metro farms from a 1992 study.[17] These are:

- Recreational farms are defined as farms with sales of less than $10,000 in 1997 constant dollars. USDA reports that these farms are very small and have little ability to generate income for the farm family. Income from off-farm sources is common across farms, but it makes up a large portion of total income for these farm households.

- Adaptive farms are whose which produce relatively high-value products with sales of $10,000 or more and have sales of more than $500 per acre. By specializing in high-value products, these farms adjust to increasing land prices, population density and continuing conversion of local agricultural land to non-farm use.

- Traditional farms are all other farms, but these include farms with sales greater than $500 per acre if they did not have high-value specializations. USDA reports that traditional farms are most likely to remain in non-metro counties, where there is less competition for land and labor and fewer off-farm job opportunities.

Concluding and Summary Points

Over the past decade much of agriculture in Washington State has experienced an economic downturn due to the loss of competitiveness with other production areas. This is due in part to the increased cost of production in Washington relative to competitors. At the same, time farm prices have been under pressure due to expanded supply from new producers in other countries. By 2004, Washington agriculture was returning to the revenue levels earned by farmers ten years earlier. It is clear that the state's farmers and food processors have faced significant financial challenges.

National projections by USDA suggest current trends will continue, with imports taking an ever-larger share of total U.S. market for fruits and vegetables. This projection is based on the continuance of current conditions, such as "manageable" energy prices. If the assumptions change, so do the projections. Even if the national projection holds, this does not mean that Pierce County cannot counter this overall trend. However, it does show that recent past trends are projected to continue into the future for agriculture, and that USDA expects the overall competitiveness of U.S. agriculture will further erode in the next decade.

Research discussed above confirms that agriculture in Pierce County and other urban areas faces greater challenges than growers who are located in more rural production areas.

The following summary points are most relevant regarding the recent performance and conditions in Pierce County agriculture:

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[16] Ibid., p. 40.
[17] "Agricultural Adoption to Urbanization: Farm Types in Northeast Metropolitan Areas", by R.E. Heimlich and C.H. Barnard in Northeast Journal of Agricultural and Resource Economics, Vol. 21, No. 1, April 1992, pp. 50-60.

- Agriculture is in a downward trend in the number of commercial farms and acreage. Analysis shows there are many small, non-commercial (under $20,000 in annual sales) operators in the County and most have a "farm" as defined by the Census of Agriculture by virtue of having a small number of livestock. The "all farms" data estimated in the Census of Agriculture shows that the number of farms in Pierce County increased from 1997 to 2002.

- Using the decreasing average farm size as the indicator, it appears that parcel size is decreasing for Pierce County farmers. This means to secure greater income and profit they must expand production per acre, or they must be a part-time farmers. Another option is to start value-added processing or distribution operations to complement their farming operations.

- Nursery and greenhouse plant production has been the most sustained growth sector in agriculture in Pierce County. More commercial farms are entering nursery production over time, the opposite trend for most food categories of agriculture.

- Many key stakeholders have reported that small farms selling directly to consumers represent an important trend for the future of Pierce County agriculture.

- There are still relatively few organic farmers in Pierce County. The trend of organic agriculture is growing but not at a pace that would replace the loss of traditional farmers.

- The latest Census of Agriculture was conducted in 2002. Many key stakeholders interviewed in this analysis believe there has been an acceleration in the loss of agricultural lands in Pierce County agriculture since that time.

Two factors stand out on which much of Pierce County's future agricultural economic viability rests. More residents in the Greater Puget Sound will need to view farms as a true "public good" which they are willing to support. The best form of support is consumer willingness to pay a premium price for local foods. A second condition that is more directly important for Pierce County citizens and their government is the enactment of programs to preserve farmland and directly encourage and protect the farmers who do wish to grow and market food crops within the County.