A Preliminary Draft Report on Skagit Agricultural Cluster Sustainability

Prepared by

Western Washington Agricultural Association
Skagitonians to Preserve Farmland

Prepared for:

Farms Fish Flood Initiative, a collaborative effort between Skagitonians to Preserve Farmland, Western Washington Agricultural Association, NOAA Fisheries, Washington Department of Fish & Wildlife, Skagit Conservation District, Skagit County, The Nature Conservancy and Skagit County Dike District #17

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Introduction

Agricultural leaders in Skagit County have, for well over four decades, been advocating for a better understanding and evaluation of Skagit County agriculture as part of the community's effort to keep Skagit Agriculture economically viable. One reason for this request has been the long held belief that land base acreage plays a primary role in providing sustainability to Skagit's unique agricultural make up. While there have been numerous attempts to study one or two aspects of Skagit agriculture, to date there has not been a study initiated or undertaken to explore and understand all the activities, institutions, organizations, infrastructure and networks that make up and are critical to a sustainable agricultural system. Researchers are now saying these aspects should be considered when evaluating a system, such as Skagit's agriculture industry.

Skagitonians to Preserve Farmland (SPF) and Western Washington Agricultural Association (WWAA), as far back as early 2000, began advocating for and soliciting grant funding for a comprehensive study and analysis of all aspects of Skagit Agriculture, including but not limited to a better understanding of Skagit Agriculture's land use requirements.

This study is a part of the Farms, Fish and Flood Initiative (3FI) which evolved from lessons learned from the Fisher Slough Restoration Project. Founding 3FI members, Skagitonians to Preserve Farmland, The Nature Conservancy, Western Washington Agricultural Association and the Washington Department of Fish & Wildlife desired to continue working together to determine how to replicate multiple benefit projects like the Fisher Slough Restoration Project, across the Skagit Delta landscape. The 3FI membership grew to include NOAA Fisheries, Skagit Conservation District, Skagit County, and Skagit County Dike District Partnership, which now makes up the 3FI Oversight Team. This initial research and preliminary report will be used to better inform and guide actions moving forward.

Background and Process

As part of the 3FI's National Estuary Program (NEP) Watershed Protection and Restoration Grant, Western Washington Agricultural Association (WWAA) and Skagitonians to Preserve Farmland (SPF) developed a scope of work for a study that would help identify Skagit County's agricultural industrial cluster, that is, the activities, institutions, organizations, infrastructure and networks that, when taken together, create and maintain a sustainable agricultural industry.

To help provide guidance to the project managers with the research, review and development of this study, the project managers convened an Agricultural Cluster Analysis Steering Committee (Steering Committee). The Steering Committee members provided feedback into numerous aspects of this research project and was comprised of the following individuals:

- **Brandon Roozen**, Director, Western Washington Agricultural Association (Project Manager)
- **Allen Rozema**, Director, Skagitonians to Preserve Farmland (Project Co-Manager)
- **Brad Smith,** Co-Owner, S&B Farms, Inc.
- **Annie Lohman,** Co-Owner, Lohman Farms
- **Darrin Morrison**, Co-Owner, Morrison Farms Inc.
- **April Putney**, Director, Futurewise Statewide Policy & Advocacy
- **Ron Wesen**, Board of County Commissioners and Co-Owner, Wesen Dairy.
- **Stephen Jones**, Director, WSU Northwest Research & Extension Center
- **Kris Knight,** The Nature Conservancy (3FI Project Manager)
- **Sarah Jo Breslow**, Environmental Anthropologist
- **Patsy Martin,** Director, Port of Skagit County
- **Tim Rosenhan,** Former member of Skagit County's *Envision 2060 Citizen's Advisory Committee* and owner, Innova Kayaks.
- **Steve Sakuma,** CEO and Co-Owner, Sakuma Brothers Farms.

The Steering Committee met six times as a group between June and December 2013 and two times between January 2014 and the end of the project period. Additionally, individual steering committee members were consulted upon as needed by the project managers and their consultants during various times throughout the research and development of this study.

For the bulk of the economic research and analysis of economic indicators, the Puyallup case study and compilation and analysis of statistical data, the project managers relied on Bill Mundy of Mundy & Associates and Ted Lane of Thomas/Lane & Associates (Mundy/Lane), economists and land use experts, specializing in land use and agricultural economics. Additionally, Mundy/Lane were contracted to begin the first phase of empirical research by conducting interviews with individuals from identified key stakeholder groups within elements of Skagit County's Agricultural Industrial Cluster.

Due to the complex nature and changes in the methodologies of how various government agencies collected data over the decades, much of Mundy/Lane's work focused on analyzing data sets from numerous federal and state agencies.

With Mundy/Lane focusing on analyzing and synthesizing federal and state data sets and completing the first round of interviews, project managers contracted with researcher and editor Dick Clever, and called upon members of the Steering Committee to assist in expanding the research into additional aspects of the Skagit Agricultural Cluster. With assistance from Mundy/Lane, Clever and Steering Committee members, project managers began assessing what, if any, data gaps were presenting themselves from the research to date and what additional research and work would be needed in outlying phases of this work moving forward.

By late August 2014, it was better understood that additional research and information would need to be collected moving forward to address some of the issues and data gaps identified and raised in the preliminary research and draft report by Mundy/Lane.

The following is a preliminary report on some of our findings to date as well some of the issues/concerns outlining additional phases of work moving forward. Project managers deem the work to date the beginning of the long called for and desired study to better understand what makes up and sustains Skagit's unique and special agricultural industry. This work is the initial phase of research that represents the best efforts of the project managers to date and creates the foundation for much more work to follow. The project managers and their supporting organizations present this preliminary research and work in the spirit of providing leadership and direction in maintaining one of the last great agricultural systems remaining in Puget Sound. In doing so we challenge the reader to be critical, but to do so constructively and in the spirit of helping to keep Skagit agriculture viable while also managing and protecting all the values important to the greater Skagit Valley community.

Background on the Study Area

The Skagit Valley is home, acre-for-acre, to the Puget Sound region's most productive farmland. Skagit Valley agriculture continues to thrive while farming elsewhere in Western Washington has declined. Still, the success Skagit agriculture has enjoyed over time has not been without its challenges.

The Skagit Valley has thrived as an agricultural center for more than a century. Among Skagit agriculture's sustaining qualities are the rich delta soils, abundant water, temperate marine climate, innovative and adaptive farmers, a supportive community and elegantly simple but elaborate and critically important diking and drainage infrastructure. The valley's productivity springs from more than a century of agronomic practices by generations of farmers who learned to work with land, climate and each other by painstaking trial and error.

The valley's red, white and yellow potatoes are highly prized for their quality and are sold in regional, national and international markets. The valley's spinach, cabbage and beet seeds supply the world, as do its berry crops. In recent years the increased production of high quality corn and grass silage for local dairies and the introduction of high-quality grains hold strong promise to provide farmers with additional source of income as well as another element in the valley's complex crop rotation system.

Most of that abundance is produced on nearly 70,000 acres largely concentrated in an area west of Sedro-Woolley and bounded by Samish Bay, Padilla Bay, Swinomish Channel and Skagit Bay. The area contains nearly all of the Skagit Valley's best soils. Farming on the delta bottom land is made possible by an elaborate system of dikes and tide gates that both protect the land from flooding while fending off saltwater borne on high tides. Saltwater intrusion, unimpeded, would likely put an end to nearly all commercial farming in the delta.

This report, which includes research and material developed by PhD. economists Bill Mundy of Mundy & Associates and Ted Lane of Thomas/Lane & Associates (Mundy/Lane), begins to examine the past, present and future of Skagit Valley farming. It is the first-ever attempt at describing, in full measure, the county's agricultural economy. But the farming community is about more than acres planted and income earned. It is a cultural and social way of life that is embraced not only by those who work the land, but the non-farming communities in Skagit County and Puget Sound that enjoy the open space that farming preserves and share the values that keep sustainable farming thriving in the Skagit Valley.

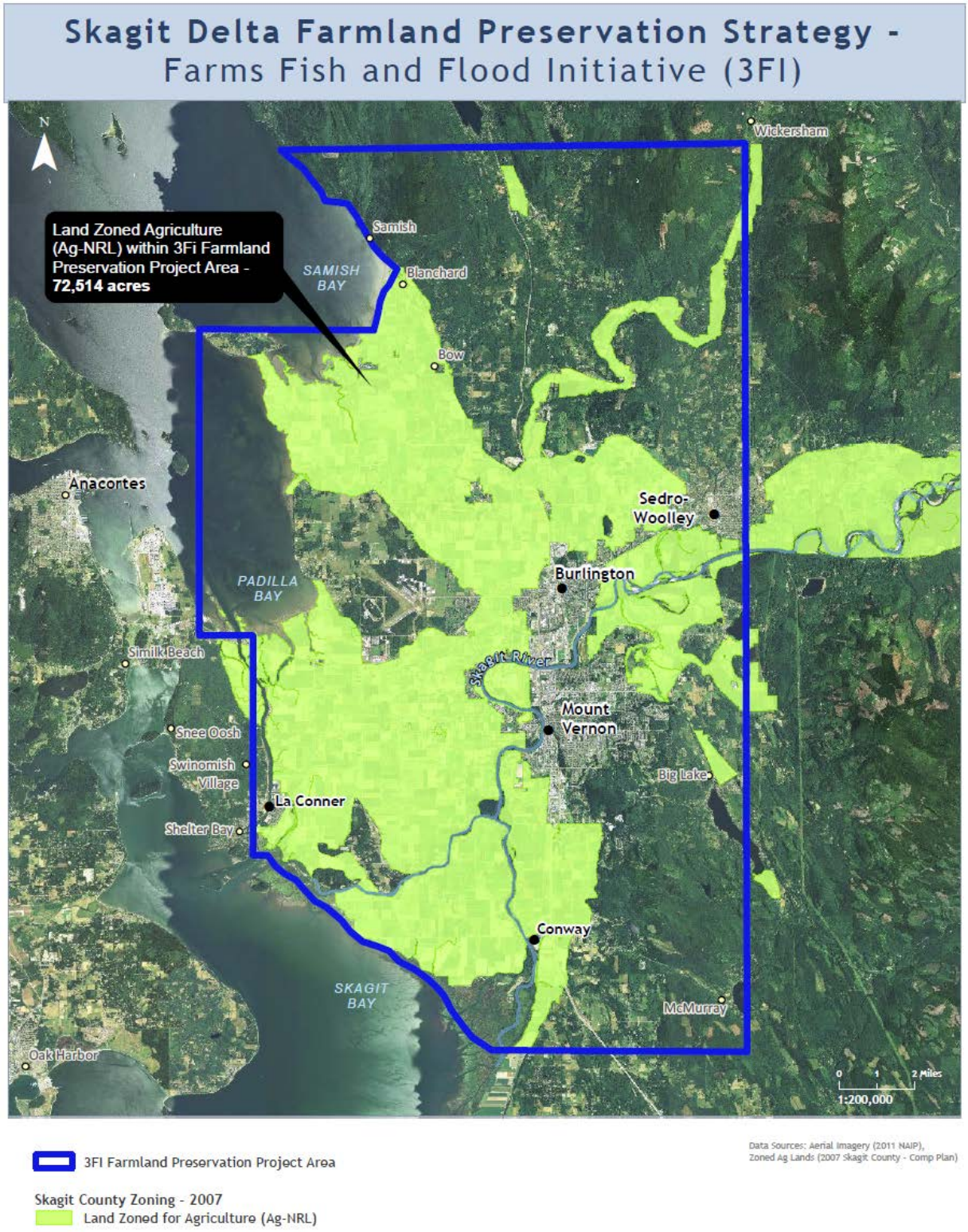
Skagit Delta Farmland Preservation Strategy -
Farms Fish and Flood Initiative (3FI)
N
Land Zoned Agriculture (Ag-NRL) within 3Fi Farmland Preservation Project Area - 72,514 acres
Wickersham
Samish
SAMISH BAY
Blanchard
Bow
Anacortes
Sedro-Woolley
Burlington
PADILLA BAY
Similk Beach
Skagit River
Mount Vernon
Snee Oosh
Swinomish Village
Big Lake
La Conner
Shelter Bay
Conway
SKAGIT BAY
McMurray
Oak Harbor
0 1 2 Miles
1:200,000
3FI Farmland Preservation Project Area
Skagit County Zoning - 2007
Land Zoned for Agriculture (Ag-NRL)
Data Sources: Aerial Imagery (2011 NAIP), Zoned Ag Lands (2007 Skagit County - Comp Plan)

Figure 1

One Farmer's Life

Every day brings new challenges for a typical Skagit River delta farmer. There is the changeable weather, a sudden deluge that can ruin potato harvests, vagaries of national and international markets, sudden shifts in costs of inputs, working with the delta's complex crop rotation system and regulatory obstacles to repairing tidegates and maintaining drainage ditches.

One such farmer agreed to talk about his farming practices and his ties to the soil in connection with this cluster study. He preferred not to be identified by name, so we call him Tom Grower.

Grower's great-grandfather settled in the Skagit Valley in the late 1890s, but the family began farming in earnest when Grower's father took it up and the family has been farming continuously for nearly 60 years. Today, the family farms on nearly 2,000 acres in the Skagit delta. The big cash crop is potatoes. Most other crops, including grains and seeds, are worked around the three-to-four year rotation of potatoes.

The Grower equipment yard south of Mount Vernon hosts several huge tractors, potato diggers, a combine, and other devices acquired at costs "in the millions," which is as precise as Grower cares to put it. Since he began farming with his father more than 20 years ago, Grower has learned to read the subtle shifts in weather conditions and soil moisture so as to best time the harvest. September is when the potato harvest begins in earnest.

Problems emerge right away. Grower's new, $150,000 digger bent a blade, which is the part that lifts the potatoes out of the ground and deposits them on a chain belt that begins removing the dirt from the tubers. The machine is designed to handle the tender-skinned Skagit red, white and yellow potatoes without damaging them. While that machine is being fixed a second digger sustained a ripped rear conveyor belt, which takes the potatoes from the digger and carries them to the truck bed.

The repairs were a matter of some urgency, since Grower's washing plant would soon have 35 workers waiting with nothing to do. The machines were fixed in time and the flow of Skagit spuds to the washing plant went as planned. This is why Grower has three potato diggers so the harvest can continue even in the event of a breakdown. He always has maintenance issues, but usually not this major or two machines out at the same time. One of Grower's diggers is specifically designed to harvest potatoes even when rain saturates the fields. Normally, a heavy rain will forestall harvest and if it continues a whole field of potatoes can be lost.

Grower doesn't have crop insurance, which he says doesn't compensate farmers of specialty crops for more than half of their losses. Instead of paying insurance premiums he uses the money to buy enough equipment to be able to speed up the harvest under almost any conditions.

Born and raised in Mount Vernon, Grower's roots run four generations deep. And while he does take a vacation out of town, sometimes to Hawaii, sometimes to Alaska, he is just as happy to stay home and run the farm.

"For me," he says, "This is fun."

Is There a "Critical Mass?"

The Puyallup Valley, in Pierce County, once rivaled Skagit County in agricultural output. The alluvial soils of the Puyallup River delta were highly productive and supported a large commercial farming community. But the Puyallup Valley's fertile bottomlands offered opportunity to developers seeking to profit from the coming explosion of urban growth stimulated in large part by the rapid expansion of the Port of Tacoma.

Industry had overrun the easily buildable flatlands of the Kent Valley in southern King County. The Puyallup Valley flatlands were there to be exploited.

In 1979, Mundy and Associates, Inc. were retained to study the viability of agriculture in the Puyallup River Valley. The study was completed in August 1979. The client was Pierce County government, which sought the study out of concern for the conversion of agricultural land in the valley to non-agricultural uses. The land was topographically flat, there was good road infrastructure and it was close to the Port of Tacoma.

The Puyallup River Valley study concluded that viable commercial agriculture was at a "tipping" point. There were a large number of commercial farms (dairy, berries, vegetable and grain crops), there was not a great deal of population encroachment and there was a relatively good infrastructure. But urban pressures were to prove relentless.

Rural lands in Pierce County at the time of Mundy's study were largely unzoned. Farmland was taxed based on its "highest and best use," which caused many farmers to sell their land for development and either retire or pursue other opportunities. After the passage of the Growth Management, Act Puyallup Valley cities – Puyallup, Fife, Sumner and Orting – annexed thousands of acres of rural land and rezoned it for industrial and residential uses. The population of the valley exploded as the Port of Tacoma attracted many new industries paying good wages.

When Puyallup Valley agriculture was, indeed, at a "tipping point," as Mundy concluded, local government leaders made a conscious decision to opt for development instead of agriculture. Skagit County rural landowners and local governments have pursued a different course. Local county and city governments, with strong community support, have established a bulwark against easily converting farmland to non-agricultural uses. It comes in the form of strict zoning measures and development regulations that discourage and prevent the conversion of the County's agricultural, forest and rural resource lands.

However, concerns remain in the farming community over the protection of the Skagit Valley's agricultural core – the Skagit River Delta, which encompasses virtually all of the county's best, or Class I, soils. It is that approximately 70,000 acres that make the valley's highly diverse and successful agricultural economy what it is today.

The valley has seen agricultural acreage slip away little by little over time. Much of the land taken out of farming was swallowed by the expansion of the urban boundaries of Mount Vernon and Burlington in the 1980s and 1990s. Some of the lost farm acreage was marginal cropland or pasture that faded away with the county's shrinking dairy and livestock industry. But the approximately 70,000 acres of prime Skagit delta croplands protected by its elaborate dike and drainage districts have remained largely intact. The question now is: Can it remain so?

As farmland is consumed for development on the fringes of growing cities, some agricultural economists question whether there is some sort of "tipping point" at which loss of the farming sector becomes inevitable. Studies going back as far as four decades have not proven conclusive. But most studies have been conducted post 1970s, when much of the conversion of land from agricultural to urban uses had already occurred.

Furthermore, most of those studies have focused on East Coast states. The findings of those studies may not be directly applicable to the agricultural environment in the Skagit Valley. Still, studies conducted by agricultural economist Lori Lynch are frequently cited in the debate over whether there is such a thing as "critical mass" of farmland needed for the survival of a region's agricultural economy.

Lynch and her associate Janet Carpenter delved into the issue of "critical mass" in a study published in July of 2002 while working at the University of Maryland. Their study covered the mid-Atlantic states of Delaware, Maryland, New Jersey, New York, Pennsylvania and Virginia. Among their conclusions:

> "… the biggest rates of farmland loss occurred between 1949 and 1974, when farmland acres were actually at their highest. Eighty percent of the farmland that was removed from farming between 1949 and 1997 was lost before 1974. In addition, we find that the rate of farmland loss is greater than the rate of harvested cropland loss. Thus, it is possible that the most marginal land in a county is being removed from production first."

Lynch has long been a skeptic of most studies that claim a minimum acreage is needed in a region to sustain an agricultural economy. But she does acknowledge that the issue remains an open question, at least in her mind. She writes, in a 2006 paper:

> "Despite the recognition that a critical mass might exist, extensive research has not been conducted to prove the existence, or exact level, of such a threshold."

The one study that she finds credible was published in 1974 by two Rutgers University economists, Pritam Dhillan and Donn Derr. Their approach was to create mathematical models that could establish a critical mass beyond which the loss of farmland would trigger the end of major agriculture in a farm community. Their model was designed to determine the acreage necessary to support agri-businesses that supply equipment, fertilizer and services to farms in a given area.

Lynch, in a 2006 study, questioned whether counties that set a minimum of farmland acres to preserve are relying on good data. She wrote:

> "The methodologies for defining these levels, in all except the Dhillon and Derr study, appear somewhat ad hoc."

Whether the unique circumstances around Skagit Valley agriculture are easily "modeled" by researchers focused on East Coast lands and circumstances is questionable. Skagit's delta soils, elaborate system of dikes and drainage infrastructure, scientific and biological requirements for crop rotation and complex social and cultural institutions around land sharing to support crop rotations, are not easily measured, let alone duplicated in economic models.

The Agricultural Industrial Cluster

Many leading agricultural economists have begun to use "cluster analysis" to evaluate the viability of agricultural economies. One of the goals of cluster analysis is to assist private sector and government decision makers in pursuing the policies that enhance cluster groups.

Harvard economist Michael Porter introduced the concept of the industrial cluster in his seminal 1990 book, "The Competitive Advantage of Nations." Porter defined clusters as "geographic concentrations of interconnected companies and institutions."

But Porter's approach to cluster analysis is relatively new as applied to agriculture. United Nations agri-business economist Eva Gálvez-Nogales notes in a 2010 paper that "although there is a wealth of research and initiatives relating to clusters in general, remarkably little attention has been paid to clusters in the agricultural sector." She observes that cluster analysis "has been traditionally applied to sectors that focus on innovation as a core value, such as information technology, electronics, care manufacturing, biotechnology, and oil and gas industries."

Gálvez-Nogales' included a definition of an agricultural cluster in that 2010 report for the UN Food & Agricultural Organization, as:

> "… farmers [who have joined with] entrepreneurs, packing house owners, extensionists and other actors [and] have woven value networks, i.e. they have built vertical and horizontal linkages among themselves: have worked with universities and research centres to develop new varieties and new technologies; and have sought partnerships with public agencies and non-governmental organizations …"

Gálvez-Nogales was describing in that instance the ideal model for developing sustainable and profitable agriculture in developing countries, which has thus far been the most frequent use of agricultural cluster analysis. While it isn't clear whether such an analysis has ever been done on a mature, fully functioning and sustainable agricultural

cluster like Skagit Valley's; it could be argued that Skagit Valley's agriculture system is a relatively close match to her description.

A 2003 Oregon State University study by Benjamin Rashford, David Lewis, Rose Evonuk and Bruce Weber of farming in Oregon's Willamette Valley stated:

> "In order to effectively preserve farmland, policy makers need to fully understand the interrelationships within rural agricultural communities. The agricultural infrastructure is the web of personal, economic, social and legal relationships that support the production of agricultural commodities."

These relationships are a "revolving circle of interdependence [that] raises the issue of a critical mass in agriculture." They suggested that "critical mass" is comprised of dependencies between farms as well as dependencies on local agricultural services, which are interrelated.

The Skagit Valley "Agricultural Cluster"

The Skagit Valley's agricultural operations are unlike any other in the United States, and quite possibly the world. There exists a multi-generation farming community, with strong business, governmental and social networks – formal and informal – century old infrastructure and the land itself. The high quality soils are enriched by millennia of sedimentary deposits and volcanic residues. Those soils, along with an ample water supply and temperate climatic conditions, make the delta one of the most productive agricultural zones in America. The Skagit agricultural industrial cluster has many parts which include but may not be limited to:

> **Soil** – Highly fertile alluvial soils deposited on the valley floor through millennia of water-borne silt. The predominant soil types are silt loam and silty clay loam. The delta holds virtually all the valley's Class I soils, which are described as soils with the fewest limitations on what can be grown.
>
> **Water** – The Skagit River is the third largest river on the West Coast, not counting Alaska. It accounts for 30 percent of the fresh water flowing into Puget Sound. It fans out into two main branches as it flows through the delta.
>
> **Climate** – Due in large part to latitude and proximity to the Pacific Ocean, North Puget Sound's west coast marine climate provides relatively stable temperatures with minimal temperature extremes, and provides some of the longest day length within the continental United States making Skagit County one of just a few premier seed growing regions in the entire world.

Culture - Generations of farming families, committed to sustainable agricultural practices, with strong ties to the land and their neighbors, provide for an interconnected agricultural community.

Physical Infrastructure – The clay content of delta soils, while full of nutrients, requires a well maintained diking and drainage system built by the farm community over the past century.

Industry Infrastructure– Skagit Valley agriculture supports many firms supplying farm machinery as well as required technical support to maintain and operate the equipment. Other firms provide fertilizers, chemicals, seed stock and field advisors, dairy services, veterinary services, soil scientists, crop advisors and businesses and financial services. The Port of Skagit County plays a critical role in recruiting and incubating new businesses and supporting existing business.

Community Support – Over 15 years of polling has demonstrated there is strong and widespread community support for Skagit agriculture and the protection and preservation of the agricultural land base. Numerous social clubs and non-governmental organizations support all sectors and needs of Skagit agriculture.

Research and Technology and Innovation- Washington State University has made the Skagit Valley one of its principle research centers in Western Washington. WSU researchers and the WSU/Skagit County Extension service provide a constant flow of information to farmers about emerging plant diseases and a wide range of advice on cropping practices.

Government – Local governments, including the Port of Skagit County continue to support policies, programs and regulations that protect and promote agriculture.

The Land Base

In the 62 years since the 1950 Census, Skagit Valley's harvested cropland has been higher at times, but it has never fallen below 56,000 acres. Most, if not all of that land is protected by the Skagit Valley's diking and drainage districts. This is despite the total farmland acreage for the county falling from 161,163 acres in 1950 to the 106,538 acres reported in 2012.

With that said, the Mundy/Lane research reveals that Census of Agriculture data requires careful interpretation as the Census of Agriculture has changed the way it categorizes or accounts for land uses over the years, making identifying trends difficult. Despite tedious research by Mundy/Lane, it isn't clear why total farmland acreage fell from 109,834 to 95,357 between 1982 and 1987, a loss of just under 15,000 acres. Then increased between 1992 and 2007 from 92,074 to 108,541 total farmland acreage.

The Mundy/Lane research also identified that USDA's 2002 number for total farmland of 113,821 acres was inaccurate due to the agency compiling its acreage figures by estimates rather than by enumeration. This forced Mundy/Lane to recalculate the 2002 figures for total farmland by "trending" between 1997's 93,495 acres and 2007's 108,541 acres to come up with a more realistic estimate of 100,000 acres for 2002.

Mundy/Lane also found that between 1982 and 1992 there appeared to be a total farmland loss of 18,650 acres. The cause of the apparent loss of farmland has not been identified and needs to be investigated. A preliminary investigation identified that some of the loss may have been due to the three main lower valley cities expanding their borders through expansion of urban growth boundaries and/or annexations. Some longtime farmers interviewed have suggested spot zoning (short plats) allowed by the Skagit County in rural areas may account for some of the loss. Then, too, shifting land classifications by the Census of Agriculture may have had some effect.

The reclassification of 18,560 acres between 1992 and 2007 as farmland changed the equation by a stroke of the pen as 3,200 acres were classified as woodland, 7,220 acres in permanent pasture/rangeland, and 8,820 acres in agricultural buildings.

Skagit Valley Crop Trends

One of the great strengths of Skagit Valley agriculture is the diverse mix of crops that are grown here, enabled by the delta's high concentration of quality soils. As many as 80 different varieties of crops can be grown in the valley at any one time, although about a dozen key crops dominate. This diversity helps assure that the Skagit Valley farmers are not forced to rely on a narrow choice of markets for their products.

The major crops supporting commercial agriculture are grown in the Skagit River delta, where the valley's best soils are concentrated. The valley's leading crops in farm gate value are potatoes, berries, seeds, cut flowers and nursery crops.

Currently, potatoes are the big story in Skagit agriculture, with acreage increasing from just 1,520 in 1978 to the 14,000 acres estimated by the County Extension for 2013. Despite increasing competition from other states, the demand for the Skagit red, white and yellow potatoes remains strong.

The Skagit Valley has also gained a worldwide reputation for the quality of its seed crops. According to estimates by WSU-Skagit County Extension, the Skagit Valley and Snohomish County grow about 75 percent of the nation's supply of spinach and cabbage seed and about 95 percent of the nation's beet seed. Several international seed companies are operating in Skagit County, which supply approximately eight percent of the world's spinach seed, as well as 25 percent of the world's supply of cabbage and beet seed.

One of the keys to Skagit Valley agriculture's sustainability is in its complex crop rotation system, which has evolved over a century of cooperation among farmers making the most efficient use of available croplands. The primary reason for crop rotation is to prevent soil-borne plant diseases, provide isolation (in some cases up to two miles) and to maintain the soil tilth and vigor.

The requirement that potato crops be rotated, on average, every four years, as well as the specialized growing conditions for seed crops take careful planning. Spinach seed, for example must be rotated no less than every 14 years. Other seed crops have variable rotation needs. But added to rotation is the requirement that seed crops be isolated at least two to three miles from each other to prevent contamination from pollen drift.

Seed crops are assigned to fields based on a procedure called "pinning." Seed company representatives draw lots, which determine the order in which fields are committed for each company's seed crops. The process involves some land trading among farmers who have worked out their relationships over centuries of cooperation.

The WSU-Skagit County Extension report for 2013 puts total acreage for beet, cabbage, spinach and a few miscellaneous seed varieties at 3,491 acres. The Extension's acreage

count is based on the actual acreage contracted by the seed companies through the semiannual pinning process hosted by the Extension.

Spinach was by far the biggest seed crop at 2,139 acres, with beet seed covering 1,005 acres. The Extension service estimated 2013 revenues for vegetable seed producers at $8.85 million. The Extension notes that because of the need for separation among the seed varieties to prevent cross pollination by wind drift, the valley is limited to a maximum of 5,000 acres of seed crops. Additional acreage by seed companies located in Skagit County is contracted with growers in Snohomish and Whatcom counties.

Although potatoes are the valley's dominant cash crop, other specialty crops are vitally important not only for the income they bring, but the maintenance of the valley's complex crop rotation system. Berries, cut flowers, bulbs and nursery crops are among some of the Valley's top producing crops. While grains, particularly wheat and barley, have been an important part of the rotation system, new research and development in value added processing distilled and fermented alcohol is holding strong promise for growers. Finally, as feed stocks for livestock become increasing expensive, Skagit dairies have seen opportunity to grow increasing amounts of grass and corn silage locally, dramatically increasing acreage devoted to these crops.

Skagit County was a strong dairy producer well into the year 2004, when about 50 dairies produced 350 million pounds of milk. More recently the numbers of dairies have declined due to many factors that include volatile markets, increasing regulations and farmers aging out of the business. The year 2007 saw the biggest loss of individual dairies, which fell from 37 to 29. But the dairy industry in Skagit County has held on since then with a 2013 finding that there are still 29 dairies producing 280 million pounds of milk valued at $52.8 million.

The 2007 Census of Agriculture reported that sales (in inflation adjusted, 2012 dollars) of poultry and poultry products fell by more than half over the 15 year period between 1992 and 2007, while at the same time the number of poultry product producing farms went up by almost five times, rising from 27 in 1992 to 125 in 2007.

With declining sales (in constant value dollars) and a rapid growth in the number of poultry farms, average sales per farm dropped from about $1.0 million in 1992 to barely a $100,000 in 2007. It appears that the production of poultry and poultry products in Skagit County is shifting from larger farms selling into commercial markets to smaller farms (some owned and operated by persons with significant non-farm income) – including organic operators – who sell primarily into direct consumer markets in the multi-county Seattle Metropolitan Area.

Farm Trends

During the period 1997 through 2007, there was a sharp increase in the number of Skagit farms with annual sales of less than $10,000. The number of farms with sales between $10,000 and $49,000 grew very slowly while farms with sales over $50,000 declined between 2002 and 2007 after rising slowly during the prior 15 years.

The number of farms with less than 10 acres fluctuated very little between 1982 and 2002 and then increased sharply during the next five years. Farms of 10 through 179 acres rose sharply between 1982 and 1987, declined very moderately between 1987 and 1997, and then rose sharply again between 1997 and 2007.

The valley tradition of stewardship for the land comes from generations of those born to that responsibility, with 94.7 percent of Skagit farms owned by those who operate them, according to the 2007 Census. Owner-operated farms accounted for 86 percent of total acreage in farms.

A dramatic change between 2002 and 2007 was the sharp drop in the numbers of farmers who report farming as their primary source of income. Those who make their livings mostly on the farm were 61 percent of all operators in 2002. By 2007, that number had dropped to 39.4 percent. The change could be due, in part, to the growing number of those who choose a rural lifestyle while continuing their full-time jobs elsewhere. Some consolidation of medium-sized farms into larger ownerships may also have affected the data.

Skagit Valley Agricultural Business Infrastructure

Skagit County has a healthy and stable network of businesses with mutually supportive relationships with the agricultural community. Farmers spend tens of millions of dollars a year in Skagit County on goods and services needed to support their efforts.

The concentration of high value agriculture in Skagit County and in nearby counties supports four major farm equipment dealers– Brim Tractor, Farmers Equipment Co., Scholten's Equipment and Washington Tractor. All the firms handle a full range of equipment, but each has its long-term customer base special niche services.

There are two major agronomic supply firms serving the region – Skagit Farmers Supply and Wilbur-Ellis. Both supply bulk fertilizer and their field agents advise farmers on how and when to apply fertilizers and chemicals. Skagit Farmers Supply also sell diesel fuel and gasoline and is the regions largest propane distributer.

Skagit Farmers Supply, Valley Farm Center and Coastal Farm & Ranch also provide goods and services to all scale and size of farm operations in Skagit Valley and the surrounding region.

Numerous other firms in the county provide soil testing and analysis, crop consulting and other services.

A key institution in the Skagit Valley is Washington State University's Northwest Washington Research and Extension Center (WSU NWREC) in Mount Vernon. The NWREC provides both basic research into agricultural production and also is available to address specific problems Skagit growers may encounter. The Center's research has been particularly important in supporting the seed and crop growing sectors of the county's agricultural economy. Today, the Mount Vernon facility is one of the lead WSU agricultural research centers for Western Washington, serving Skagit, and the Puget Sound region.

Since 1943, the NWREC has performed valuable research on plant diseases, including those that threatened beet and cabbage seed production. In recent years, due to strong community support and advocacy, WSU has reinvested in the NWREC's staff and increased its scope of work. In 2006, the facility was extensively renovated and a new Agricultural Research & Technology Building opened. This critical research and support facility houses research programs for entomology, small fruit horticulture, vegetable horticulture, vegetable pathology, vegetable seed pathology, weed science, and plant breeding.

The WSU-Skagit County Extension (Extension) provides services to both the agricultural and natural resources sectors, including home gardeners. In particular, the Extension supports Skagit's unique annual seed pinning event. The event was developed because of seed growing's unique isolation requirements for maintaining the quality of the seeds produced. Twice a year, in March and in June, seed company representatives and seed growers come together at the NWREC where the Extension Office presides over an annual allocation of different parcels that meet the seed sector's requirements among seed growers and companies.

No part of the county's agricultural infrastructure is more critical than the drainage, dike and irrigation systems run collectively by special districts. The districts own/operate approximately 435 miles of drainage infrastructure, approximately 160 miles of dikes and levees, and 135 tide gates. About 60,000 acres in the delta are served by the districts. Skagitonians to Preserve Farmland and Skagit County have estimated that approximately 35,000-40,000 acres of farmland would be flooded and permanently lost to farming if the district's infrastructure were abandoned.

The purpose of the districts is to protect the health, safety and property of residents in their taxing districts. The districts are authorized under state law providing for Special Purpose Districts. Each district's commissioners are elected by its own landowners. Budgets are approved by district and funded by taxes levied on the district's property owners.

As defined in state law (RCW Title 85 and 87), among other legal responsibilities, districts utilize a variety of methods to distribute irrigation water to their resident landowners. This is the only exception to Washington State's control and ownership of water. While some districts, have applied for a water right to withdraw from the Skagit River, most districts distribute water for irrigation purposes from water they generate via ground water and precipitation by impounding it within their ditches.

Local Government

In 1990, the state Legislature passed the Growth Management Act, which required local governments to develop long-range land use plans to direct commercial and residential development to preferred corridors while protecting important farmlands.

The GMA gave local governments the tools to control urban sprawl, identify the best commercial and industrial lands and prevent the conversion of agricultural lands for other uses. Skagit County set forth its most recent goals in their 2007 update to the Skagit County Comprehensive Plan, which in part encourages the County to:

> "Protect the agricultural land resource and farming in Skagit County; endeavor to minimize the loss of the resource; mitigate unavoidable losses; and replace lost resources whenever possible."

Toward this and other goals the county has adopted a large number of policies, regulations and programs to protect and support Skagit agriculture and prime agricultural soils. Skagit County administers a Conservation Futures Program, more commonly referred to as Skagit County's Farmland Legacy Program. A Conservation Futures Advisory Committee, appointed by the Board of County Commissioners, helps to administer the program by reviewing applications, making recommendations for funding and overseeing the monitoring of protected properties. To date the program has preserved approximately 10,000 acres of land for agricultural use by purchasing the development rights to the property. The program allows an agricultural landowner to sell their development right at fair market value while continuing to farm the land that he or she owns.

A 12-member Agricultural Advisory Board provides guidance to the Skagit County Commissioners on issues of concern to the farming community. The County also plans to establish an agricultural resources lands database that monitors the status of farmland. The County's comprehensive plan commits it to preserving the agricultural land base for the foreseeable future.

Community Support

The agricultural community in Skagit County benefits from widespread support both locally and from the outside. Over 15 years of public polling shows that at least two-thirds of county residents continue to support preserving farmland and the policies needed to assure that agriculture remains viable in Skagit County. The public and the environment benefit from the scenic qualities of open space, land stewardship and the crops that are consumed locally. Also, many farmers grow feed for migrating aquatic birds which arrive in huge flocks from the north at the onset of winter.

The Skagit Valley's appeal reaches well beyond the county. The Skagit Valley is a popular "day trip" destination for families from the Seattle-Tacoma metropolitan areas. Events such as the heavily attended annual Skagit Valley Tulip Festival and the Festival of Family Farms bring thousands of city dwellers into contact with the farming community. Skagit Valley's attraction is almost year round as the annual migration of tens of thousands of snow geese to the delta farm fields is a spectacle that draws many visitors in mid-winter.

Efforts by the farm community to raise public awareness of Skagit agriculture led the Washington State Legislature to nearly unanimously designate Interstate 5 from Starbird Road to Bow Hill Road as the State's first and only Agricultural Scenic Corridor. The project was conceived as a way to help "protect and enhance the natural qualities of the corridor and reinforce the value of the Skagit Valley to the economy and ecology of Puget Sound."

Looking toward the Future – Some Key Findings for Additional Research and Analysis

After many months of working with Mundy/Lane, Clever, Steering Committee members as well as many individual stakeholders, the project managers have been able to begin developing a list of some key findings that warrant additional research and study in order to better understand what significance this may or may not play in Skagit Agricultural Sustainability. Below is identified in a SWOT format, some of the project managers key findings and/or take-aways. Other readers may identify other elements warranting attention and further study or explanation. The project managers again ask readers of the preliminary research and report to bring forward ideas, concerns and issues constructively and in the spirit of helping to strengthen Skagit agriculture while also protecting all the values of the greater Skagit community.

Strengths

- Skagit County has one of, if not the, strongest agricultural economies among the five counties on the west side of Puget Sound. Only Whatcom County has about the same number of acres in crop cultivation and it produces substantially less in the way of (inflation adjusted) crop sales.

- Skagit soils, moderate climate and lots of water. Collegiality among farmers and those who support the farm community.

- Strong agricultural infrastructure.

- Ability to adopt and apply new technologies. Strong product positions in seeds, potatoes and other crops.

- Strong community and local political support for agriculture.

Opportunities:

- Although Skagit's agricultural economy encompasses a large variety of crops, most agricultural acreage is concentrated in just a few activities. Potatoes (16.9 percent), hay and grass (19.2 percent), pasture (9.6 percent), field corn – i.e., sorghum (11.9 percent) and shellfish (10.6 percent) account for over two-thirds (68.2 percent) of the agricultural acreage inventoried by WSDA in 2011.

- Seed crops, berries and bulbs are high income agricultural activities yet they account for a relatively small amount of the land used in agriculture – less than 10 percent of the total land inventoried by WSDA.

- WSU NWREC working on seed varieties that might need less frequent rotation.

Weaknesses

- Growth of organic farming could be aided with better storage and shipping facilities. Organics reduce need for chemicals and ease possible environmental impacts from agriculture.

- Production costs are higher compared to other areas of the state, limiting entry of younger people to farming.

- Distance from eastern markets and limited infrastructure to support a growing local/regional market sales.

Threats

- Growers see over-regulation by state and federal governments as an ongoing threat to their ability to keep farming.

- Conflicting federal and state policies and regulations effecting agricultural activities including, but not limited, labor, immigration, water quality and buffers.

- Continued encroachment/conversion of farmland for industrial, residential, commercial, open space and habitat restoration needs of a growing region.

- The on-going maintenance of the dike and drainage infrastructure is threatened by tribal and governmental pressures to convert increasing amounts of farmland back to a natural state to enhance recovery of the Chinook salmon, which is listed as an endangered species.