From:	Jeffrey Delapena
To:	Jude Wait; Jude Wait
Cc:	Jenna Kay; Oliver Orjiako; Cnty 2025 Comp Plan; Sue; Patricia Haggerty; Ben Duncan; Amy Koski; Lauren Henricksen; Jose Alvarez
Subject:	RE: RESEARCHER Comments on Scope of Environmental Impact Statement (EIS)
Date:	Wednesday, June 5, 2024 4:04:51 PM

Good day, Jude,

I have forwarded your comments to additional staff, and these will be added to the Index of Record.

From: Jude Wait <wellsavellc@gmail.com>
Sent: Wednesday, June 5, 2024 3:48 PM
To: Jude Wait <waitjude@gmail.com>
Cc: Jenna Kay <Jenna.Kay@clark.wa.gov>; Oliver Orjiako <Oliver.Orjiako@clark.wa.gov>; Cnty 2025 Comp Plan <comp.plan@clark.wa.gov>; Sue <suemarshall5@hotmail.com>; Patricia Haggerty <farmfoodjustice@gmail.com>; Ben Duncan <bDuncan@kearnswest.com>; Amy Koski <Amy.Koski@clark.wa.gov>; Lauren Henricksen <Lauren.Henricksen@clark.wa.gov>
Subject: RESEARCHER Comments on Scope of Environmental Impact Statement (EIS)

> Dear Oliver (and the Comp.Plan team), Jenna and the EJC and CCPH team, and select food justice oriented community friends,
>
> This is my RESEARCH response to "County's intent to prepare an EIS on the proposed update to the Clark County Comprehensive Plan. The environmental impact review process under the State Environmental Policy Act (SEPA) will be used to inform the public of the choices between the proposed growth alternatives."

The entirety of the Attached document (pdf) contains excerpts = direct quotes from my Dissertation.

Contained are issues and analysis recommended for the EIS analysis, best available "science" resilience and carbon footprint analyses -- without current data, analysis, mapping, farm community advisement and input, policy scoping, what can you possibly do to ensure climate resilience and social-environmental justice for the food, farming, ag, and food security community?

As the County continues to avoid knowledge, and just application of the information to inform policy about the farming systems here, the farms disappear. CLOSE THE LOOPHOLES, please.

ALSO: **I recommend the County adopt a Right to Food ordinance** !!!!! It will solve many problems, center EJ, and lead to a more resilient agrifood system and indeed more climate resilient County. Please scope and evaluate the Right to Food proposal. Several draft ordinances are proposed in other parts ot the US.

The corollary to Right To Food is the Community Service that Growing Food contributes... and should be subsidized !! Analyse these alternatives, please. Evaluate alternatives based on the principles ...

thanks for your attention,

> Sincerely,
>
> Jude
>
> Jude Wait, Ph.D., MiM
> / Wait, J.A. (2021). Resilience of food farming in rapidly urbanizing regions

comp.plan@clark.wa.gov

Comment #4 on the Scoping for the EIS issues

Excerpts from Wait 2021 [1] wherein Clark County was the case study.

"Secondary data revealed a 16% reduction in cropland acres in the County (2012—2017). Over 6,000 acres of productive land was converted to urban and/or suburban development (2001—2016). To protect remaining agricultural capacity, this study found an urgent need to reshape local policies, public institutions, and support networks in accordance with stated farmer needs."

"Resilience in this project refers to the capacity of farms to grow food for local consumption over the long term, whereby farmers implement adaptive strategies to overcome challenges and complexity in the context of the urban food system."

"A farm resilience assessment framework consisting of 29 indicators across agronomic, economic, environmental, and social realms was developed to compile and quantitatively analyze the results from studying 23 study farms selected from a list of 100 direct market farms in Clark County. Qualitative findings further elaborate meanings and illuminate the challenges to local food production sustainability at the farm and food system levels."

"Resilience thinking goes beyond the concept of sustainability by considering the dynamic and unpredictable aspects of the system. Resilience is the capacity for adaptation to inevitable changes while maintaining basic functions and system viability (Walker and Salt, 2006).

In addition to the expected challenges and cycles that farmers face, there may be shocks (sudden economic recession, fire, or severe storm) and/or pervasive trends (such as urbanization), all of which affect the vulnerability and adaptation capacity of farms and the food system (Urruty, Tailliez-Lefebvre, and Huyghe, 2016).

Farms and farmland continue to decline in urbanizing regions, despite ample and easily accessible quantitative measures of their economic value and policies supposed to protect agriculture. The lack of appreciation for the importance of farming in turn thwarts policy solutions, such as when policy makers and/or economic development agencies do not adequately consider agriculture in their planning processes.

High rates of farmland loss continue where development pressure is high, even in counties with relatively strong farmland protection programs, such as King, Pierce, Snohomish, and Whatcom Counties in Washington State (Canty et al., 2012).

[1] Wait, J. A. (2021). Resilience of Food Farming in Rapidly Urbanizing Regions. Ph.D. Dissertation. School of the Environment. Washington State University.

Recent research confirms the problem of farmland loss in the Pacific Northwest particularly prevalent in the context of sprawling development and expanding cities. In Washington, between 2001 and 2016, a total of 97,800 acres of cropland, pasture, range, and woodland were converted to urban development or low-density residential zoning designations (Freegood, Hunter, Dempsey, and Sorensen, 2020).

The most productive land near cities is being lost at the greatest rate, and policy solutions are inadequate to retain the food production capacity (Francis et al., 2012).

Land use zoning changes are often justified to accommodate projected growth, but the rate of farmland loss exceeds the rate of population growth. Across the United States, sprawling urban development expanded faster than population growth, and the prime farmland still was converted much faster than other rural land (American Farmland Trust, 2002a). One of the most rapidly growing counties in Washington State (Born and Martin, 2011), Clark County is well-known for its sprawling development (Williams-Derry, 2012). Between 1990 and 2000, Clark County's population grew by 45%, while the growth rate for the Portland-Vancouver metropolitan (Metro) region was 27% overall (Hough and Koski, 2007). Between 2000 and 2010, Clark County added much more residential development outside the urban growth boundary, although counties in Oregon also experienced rural sprawl (Williams-Derry, 2012).

Clark County's … expansive urban growth area boundaries, along with political fragmentation, further challenge efforts to prevent farmland conversion, compared to Oregon's metro counties (Kline, Thiers, Ozawa, Yeakley, and Gordon, 2014). These patterns of urbanization are adversely affecting farmland retention and land use planning policy is failing to protect farmland across this region. Furthermore, where farmland values are based more on development potential than on soil quality and other farm factors, land tenure continues to be one of the biggest challenges for urban area agriculture (Nickerson et al., 2012).

High values make land less accessible to new farms, as the pressures of urban sprawl affect per-acre farmland values (Livanis, Moss, Breneman, and Nehring, 2006). Land value inflation adversely affects the direct market farm sector (Horst and Gwin, 2018).

While exurban farmers tend to transition from more traditional field crops to high-value specialty crops, they also tend to sell their land when the value of the land exceeds the farming value (Delbecq and Florax, 2010). Farmers' choices when selling land are limited. Conservation programs have the potential to compensate landowners for the differential value and are designed to protect land from conversion, but these complex policies face considerable logistical and financial hurdles (Farmer, Meretsky, Knapp, Chancellor, and Fischer, 2015), as discussed as follows.

The agriculture that continues in these dynamic RUIs is influenced by complicated sociopolitical dynamics between farming and non-farming residents, resulting in relationships that can be both supportive and challenging (Sharp and Clark, 2008). Urban area farmers encounter many challenges that undermine sustainability and positive resilience, including regulatory burdens, uncertainties about the future, and misunderstandings with nearby residents and the general public (Hammond et

al., 2013). These challenges echo farmers' perspectives documented in Washington's statewide and Clark County reports (Ag Preservation Advisory Committee, 2009; Office of Farmland Preservation, 2009). The economic viability of such urban fringe farming has been linked to accessing information derived from cooperative extension services, as well as adopting innovative marketing strategies (Adelaja, Sullivan, and Lake, 2005). defining resilience and cultivating the viability of farming (Milestad and Darnhofer, 2003).

Farm viability and farmland protection success depend on a supportive environment across public, planning, regulatory, and incentive-based policy arenas (Jackson-Smith and Sharp, 2008; Libby and Sharp, 2003; Sharp, Jackson-Smith, and Smith, 2011). However, as optimistic and innovative as the alternative agrifood movements' strategies can be, urban region farms involved are not necessarily economically viable (Jarosz, 2008).

Policies—including those intended to protect agricultural land, such as urban growth boundaries, zoning, and property tax relief incentives—are not permanent. Boundaries can be moved, and land use designations can change, particularly where urban development pressure is high (Caldwell et al., 2017). Locally implemented, state-authorized right-to-farm ordinances are prevalent across the United States, with various results for supporting the farming communities (Wait, 2017).

Another common policy, agricultural zoning, is intended to limit parcel size reductions and discourage subdivision development, but it may actually result in urban sprawl because parcel sizes and zoning provisions are subject to re-zoning and variances that can further undermine farmland protection objectives as the political climate changes (Propst et al., 1990; 2012). Zoning strategies by themselves are not effective in preventing sprawling suburbs in agricultural regions, and minimum lot size requirements can sometimes actually exacerbate the problem of parcels being "too small to plow and too big to mow" (Propst et al., 1990; 2012). Zoning pushes up land values if minimum acre sizes are too small, which can further encourage development on agriculturally viable parcels (Vermont Natural Resources Council, 2013). Even agricultural district policy, a tool that designates large "blocks" of agricultural zoning, has "significant loopholes" in Western Washington State counties, and farms are often located on land where zoning allows non-farm uses (Canty et al., 2012).

Current use is a widely used policy under which landowners may qualify for property tax discounts for the land they actively farm (Smee, 2015). However, current use programs have problems. Penalties can be assessed for early withdrawal when production levels drop, or with ownership changes, and changes in production are restricted (Stienbarger and Ramey, 2004). In Washington, around 75% of active farmland had a fair market value exceeding its value as active farmland in 2006,, thereby diminishing the potential advantages of incentives to retain agricultural production (American Farmland Trust and WSDA, 2008). The per-acre property tax revenues from farmland are less than from developed land. However, long-term fiscal benefits accrue, which counties fail to consider fully. Indeed, taxes from farms actually generate more revenue than counties spend on public services needed for sprawling residential development infrastructure (Wagner, 2003).

In Clark County, implementing a TDR framework that has already been included in planning documents but has not been activated would help the county meet several Growth Management Act provisions (Berk Consulting, 2012). However, limiting factors of TDR programs include a “lack of program leadership and transaction support,” insufficient demand, and weak financial benefits for buyers and/or sellers (Forterra, 2012). TDR programs are intended to help mitigate the impacts of urban sprawl through a voluntary mechanism compatible with zoning and parcel size regulations. Many resources exist to support planners in pursuing TDR programs and for improving how the policies can complement one another (Wait, 2017). In any case, while individual policies may help or hinder the viability of agricultural production capacity in a region, complementarity and strategic use requires a supportive policy context on government and citizen levels. Multi-stakeholder networks and food policy councils (FPC) have formed to address these and other alternative agrifood movement goals, with varying degrees of success, in part dependent on having adequate staff, resources, and municipal support (Clark et al., 2020; Harper et al., 2009; Scherb et al., 2012). FPCs can play a vital role in compelling metropolitan governments to adopt plans that implement long-term visions for resilient regional food systems (Clark et al., 2020). Achieving the diversity of participation, and navigating complicated politics, are among the challenges CFPs face in advancing goals of food system democracy (Harper et al., 2009). When invested with independent decision-making capacity, local FPCs are more effective in advancing policy solutions (Sherb et al., 2012).

Agriculture is important in Clark County. Specifically, small-scale farms are highly productive and benefit from access to direct consumer markets for high-value crops. However, farming in Clark County faces immense development pressures and is declining, and the conversion of land to non-agricultural development is rampant. The scope of the loss is masked by high turnover and a lack of clear data.

Clark County is one of the most rapidly urbanizing counties in Washington State (Born and Martin, 2011) and is well known for sprawling development (Williams-Derry, 2012).

Farming generates significant economic activity in Clark County. According to the 2012 Census of Agriculture, farm expenditures totaled $54.7 million, including $5.7 million in property taxes, nearly $1 million for utilities, $1.3 million for repairs, supplies, and maintenance, $2.7 million on fuel, and $15 million for feed, among other farm production expense categories (USDA, 2014). In addition, 384 of the farms reported additional gross income from farm-related sources in 2012, totaling nearly $6 million—including $249,000 from agri-tourism and recreational services and $1.6 million for forest products (excluding Christmas trees).

Between 1994 and 2004, the number of Clark County’s food processing operations declined, and the sourcing of local products being manufactured also declined such that remaining processing facilities primarily import raw product (fruit and vegetables) from elsewhere (Globalwise Inc, 2007). Large-acre vegetable farms had disappeared by 2002 (Globalwise Inc, 2007). Fruit and dairy productions have also declined, as illustrated in the following section.

Clark County is clearly losing farmland and farms. Economic forces and market changes interplay with the land use challenges to render Clark County food farming vulnerable. Policies designed to

support agricultural production capacity appear to be ineffective, despite efforts by stakeholders to mitigate development through advocacy, conservation, and/or farmer-support efforts.

Land use Designation by Zoning and Current Use

An understanding about how farming is protected (or not), and by which policies, could inform future planning and/or policy reform. In 2007, there were 16,569 acres in the current use taxation category for farm and agricultural lands, including 6,700 acres that were also zoned agriculture (Ag-20) (Globalwise Inc, 2007). The other approximately 60% of the land was in other zoning designation, primarily rural: 3,371 acres on 341 parcels were designated R-5, and 137 parcels comprising 184 acres were designated R-10, with another 173 parcels of 5,377 acres total in other land use designations (Globalwise Inc, 2007).

Current use is also applicable to other zoning categories, but how much of the rural zoning might be in current use was not reported. Overall, the subsequent 2012 Rural Lands Study indicated a steady decline (-4% growth) in farm and agriculture acres in the current use category between 1989 and 2010 (Berk Consulting, 2012). The 2012 agricultural land analysis included a county assessor sourced map showing agricultural current use parcels within and near city UGAs of Vancouver, Ridgefield, and Camas, but acreage totals were not provided (Berk Consulting, 2012: Exhibit 6: Location of Parcels in Current Use (2011)). Rural lot size zoning is controversial in Clark County as the site of sprawling subdivisions (Case, 2012). On February 27, 2018, Clark County's Community Planning staff outlined their 2018 Work Program at a County Council work session. The presentation reported 38,000 acres in Current Use Taxation for Farm and Agriculture, and 32,000 acres zoned as (Ag 20). They approximated that the total acres in overlapping designations, being in both agricultural zoning and the current use reduced tax category, as 16,000 acres (Orjiako and Anderson, 2018). Acknowledging the uncertainties of the estimations, staff were requesting a budget for an areawide agriculture assessment "pursuant to WAC Chapter 365-190-050 Minimum Guidelines." Given the difference in the 2007 and 2018 reporting on agricultural land status, and the lack of response from the Assessor's office for an update (March 2020), it is impossible to ascertain trends or present status.

In Clark County, policy makers pay attention to the reduced tax revenue from land in current use, where the increasing value of the land means the difference between regular property taxes and the discounted agricultural use tax is significant (Berk Consulting, 2012). Counties are required to assess the difference between the current use value and the underlying land's true and fair value. In 2012, Clark County's developable land was reportedly valued at $14,700 per acre, which is higher than the Washington-wide average value of $1,600 per acre (Berk Consulting, 2012). The value of taxable property (by assessed value) went up over 8% in Clark County from 2017 to 2018.[xii] The overall land valuation data, for Clark County's current use tax assessment purposes, is tracked by the WA Department of Commerce, as follows. For the 4,219 parcels encompassing 63,365 acres in 2018, the current use land value assessed (including forest, agriculture, and open space) was $21.9 million; whereas the tax would be assessed at $1,065.8 million for its "True and Fair Value"—a difference of 192 percent ($1,043.8 million).
Land values interact with rates of sprawl and the viability of the agricultural sector (AFT, 2002a;

Kuethe, Ifft, and Morehart, 2011; Livanis, Moss, Breneman, and Nehring, 2006).

Indeed, despite policy intent, the high rate of prime farmland turnover to non-agricultural land uses continues (Canty et al., 2012; Francis et al., 2012; Sorensen, Freedgood, Dempsey, and Tobald, 2018; Daniels, 2017).

Policy Actions to Address Agricultural Capacity in Clark County

Farmers continually face uncertainties due to the changeability policies enabling agricultural land use changes, due to zoning and urban growth boundary modifications, and due to the development land speculation inherent in current use programs (AFT, 1998; 2002b; 2003; Steiner, Dunford, and Koler, 1983). Farmers complain about not being able to plan, given the cycle of GMP revisions, and the fluctuations in land values affecting their access to farmable land (Ag Preservation Advisory Committee, 2009).

Current Use for Agriculture

The current use property tax break utilized by developers (owners who maintained minimal agricultural activities but had no intentions of keeping the land in agriculture) had long been a complaint by local farmers (Gillespie, 2015a). Unfair enrollment in the program is being reduced due to recent County Tax Assessor's office efforts to audit compliance with requirements and agreements, resulting in fines being levied as well (Gillespie, 2015a). Even though penalties and back taxes are incurred when the current use is changed before the timeline, this does not deter land speculation, as developers (including farmers) can build the tax burden into the cost of their development. A 2015 survey of direct market farms in Clark County indicated an increase in participation by landowners in the current use program over the prior decade and overall satisfaction with the program (Smee, 2015). However, landowners expressed the need for more support for farms to address a host of issues such as "zoning, development pressure, neighbor disputes, labor, and consumer outreach" and expressed that "insecurity or volatility of farming" is a bigger concern for them than current use program reform (Smee, 2015). These findings echo others (Ag Preservation Advisory Committee, 2009; Office of Farmland Preservation, 2009).

Indeed, in addition to farmland protection, the need for much more support for farming in Clark County has been well documented. Recognizing the problems, numerous corresponding recommendations for concerted and targeted efforts to stem the exodus of food farming are not new (Ag Preservation Advisory Committee, 2009; Clark County Food System Council, 2012; 2013; Globalwise Inc, 2007; Gilroy, 2008; Meter, 2008; Public Health, 2012). Farmers' voices have apparently been unheeded. An educational DVD was intended to highlight the importance of farming in Clark County (Grgich and Jividen, 2008). Local economic development efforts to address food farming in Clark County were built into professional development training that included events to facilitate stakeholder input (Leadership Clark County CREDC "Produce Pals" Team, 2015). Secondary research, another forum, and an online survey additionally reiterated the needs and possible solutions (Loco4Locavores Team, 2016).

Furthermore, the alarming decline in agricultural production capacity has been recognized but not abated, as exemplified in each of the last GMP updates. For the 2008 update, an additional incremental loss of farmland from proposed UGA expansion was not deemed significant compared to the overall downward trend between 1994 and 2004 (Globalwise Inc, 2007). Spearheaded by FOCC and other farm advocates, the "Farming is not Dead" sign-carrying photo petition campaign sought to gain recognition in the context of the 2016 GMP update's proposed alternatives that would eliminate or reduce minimum parcel size zoning on rural and resource lands (Gillespie, 2015b; Steenbarger, 2015). FOCC regularly promotes agricultural land conservation policies available to county decision-makers and appreciated the fact that a no-net-loss policy actually exists in Davis, California, and King County, Washington (Wait, 2017). Many people wonder if Clark County can cultivate farming because as land conversion problems have been recognized for decades, small-scale farming persists anyway, and solutions are proposed (Thomas, 2017). Trends seem to beget further degradation rather than increased protection. For example, policy makers were using small-scale statistics as part of their efforts to justify downsizing agricultural parcels and eliminating any rural parcel size restrictions in an alternative for the 2016 GMP for Clark County (Case, 2012; Yorke, 2016).

Growth Management Planning

Both 2008 and 2016 GMP updates have been appealed by the Futurewise-FOCC team. Their most recent petition to the Washington State GMA Hearings Board challenged the legality of the GMP on several counts. Clark County's 2016 GMP included the expansion of the UGA boundaries of the Cities of Ridgefield and La Center UGA further into areas once dominated by rural, agricultural, and forest land use designations. The cities had immediately annexed the land, so the incremental urban zone expansion was deemed moot (FOCC personal communications, 2019–2020). On another appeal count, to solve the GMA Hearings Board findings in favor of FOCC, the county withdrew up-zoning plans that would have reduced minimum parcel sizes for agricultural and forest land from the current AG-20 and FR-40 zoning categories. The county also withdrew the proposed de-designation of 600 acres of dairy land from agriculture to light industrial, as proposed by the landowner (FOCC personal communication, 2020). As well, the county apparently lost the impetus to **conduct an area-wide agricultural assessment,** a process that is called for by the state when further loss of agricultural land is being proposed. The assessment was the reason behind the February 2018 work session presentation by the planning department where they presented their estimates of current use and agricultural zoning. A bid request was developed but never released by the procurement staff.

Agricultural Programming Opportunities Bypassed

When given an opportunity to support agriculture in Clark County, the government failed. Here is further evidence of Clark County's lack of political support for agriculture. In both 2018 and 2019, the CCD failed to obtain support from the county government. A funding mechanism authorized by the state and implemented in 13 counties, rates and charges derive from landowner parcel assessment fees in order to provide stable funding. The proposal to collect a fee from landowners failed twice in Clark County despite the evidence of widespread support for such a measure.[xvi] Among other

conservation (water and soil protection), the CCD had a budget line for an Agriculture program that would serve to advise the County, among other basic agricultural support strategies. County CDs that receive such basic funding have robust agricultural support programs comprising a whole suite of educational and technical assistance programs. Snohomish and Pierce Counties are notable models of CDs not totally reliant on grant funding for specific projects. The programs have continuity and therefore provide resilient social and technical infrastructure in support of the agriculture sector.

Clark County Social Infrastructure Assets

Support for sustaining agriculture in Clark County persists. Since 2008, Clark County's multi-stakeholder Food System Council (FSC) has been promoting the retention of agricultural land for local food production and healthy food access goals (FSC 2012, 2013). Numerous other organizations also address farm and food system issues in Clark County. In addition to the CCD, support has come from Clark College, Urban Abundance, WSU Extension, and others involved in local food and agriculture and resource conservation. Slow Foods SW Washington has hosted quarterly or monthly events, as well as annual gleaning events. The FSC is tracking policy and action on the county and state level and meets monthly. Clark College convened a food/farm conference to guide their future endeavors (February 2017). Some events are convened at the Vancouver Library (October 2017). In September 2017, the FSC and others convened the first in a series of strategy sessions to promote food hub initiatives for connecting farm products with consumers. By the end of 2019, the Second Mile Marketplace was established.

Indeed, Clark County appears to have many of the basic social infrastructural ingredients needed to actualize a resilient local agrifood system. However, the public agencies serving the agricultural community and landowners, primarily Clark County's WSU Extension and the CCD, have limited funding and staff to fully support the agricultural community's needs. The all-volunteer, multi-stakeholder FSC provides a context for networking across food security, farms, and local food organizations. The FSC specializes in hosting food system forums designed for education and networking, but they do not implement programs. Given the farmers' markets, CSA farms, farm stands, community gardens, and a new food hub, the region seems determined to build capacity to feed the growing consumer demand. Even the emergency food system is involved.

Conclusion

This chapter first profiled agricultural production in Clark County based on secondary data. While food farming in Clark County is still important in terms of sales, land, jobs, and productivity, the steady decline in production capacity is ongoing. Furthermore, food production is a relatively small proportion of overall cropland type (5% vegetables, fruit, and orchards, WSDA, 2019), with only 15% of farms producing such food crops (USDA 2012). Next, this chapter presented available information on farmland policies and land use designations. Secondarily sourced data was augmented by participant observation field notes. The overall purpose was to show that the policies in place have not prevented declines in capacity. There are supportive forces, but the administrative and legal strategies amid a lack of political will and mutual lack of adequate

information render solutions more remote. In contrast, Clark County does have assets. The problems and solutions are well-known, and the basic ingredients present, yet there seems to be an ongoing stagnation in the overall capacity to build a resilient local food system. The battle between saving the land versus private property development has not been solved in this fragmented context, despite forums, reports, appeals, ordinances, and pleas. Yet, the hard work to produce food continues amid the hurdles. Overall, this chapter exposes the problem of interpreting various sources of secondary data to provide an accurate profile. Other research outlines this problematic gap in the data needed inform policy (Hunt and Matteson, 2012; O'Hara and Benson, 2019), particularly in urbanizing regions (O'Hara and Lin, 2020). Further gaps are revealed, in that policies and support systems exist, but do not appear to be adequate to ensure farm or food system resilience.

Farms are at Risk

A striking finding of this research is the extent of farm vulnerability uncovered, revealing trends in aggregate that could jeopardize the capacity of local food farming. This extended case study provides a perspective on the disconnect between the appearance of strong resilience indicators in the moment (interviews) and the reality of the lack of resilience for some farms in the final analysis (participant observations). Even as the early data were being collected, farms faced a considerable risk of failure. Four farms that expressed a long-term commitment to farming sustainably when initially recruited for the study subsequently became ineligible for the study. Of the initial study farms, only 13 of 23 were still commercially producing food by the end of the study period. Specifically, two stopped selling produce, significantly changing their business model, two ceased operating altogether by the next season (2016), another two more shut down in 2017, three more sold their farm, and one more announced their last season was 2019.

These results were worse than expected. Several study farms claimed to be sustainable and scored high for resilience, but they are no longer operating. Examining the indicators more closely, no single factor seemed to predict a farm's closure or lack of longevity. Instead, the indications seemed cumulative to a tipping point. Some farms scored well on most indicators, but not on innovation or adaptability, while some exemplary farmers simply wanted to retire but did not have an heir. Thus, the indicators yielded mixed results in terms of their validity but were more accurate if viewed as a whole. Regardless, addressing many problems identified at the farm level from the farmers' perspectives would improve resilience for the farms and the direct market sector.

Farms in Rapidly Urbanizing Regions have Unique Needs

Results also confirm that at the farm level, the urban context is both helpful for offering new kinds of economically viable markets for many farms and also uniquely challenging. This finding is consistent with the literature on urban area agriculture documenting how this farming context can be both precarious and advantageous at the same time (Clark, Munroe, and Ramsey, 2013; Jackson-Smith and Sharp, 2008; Sharp, Jackson-Smith, and Smith, 2011). Results at the farm level revealed a varied reality depending on the location and the type of farm. The specific farm characteristics, family configurations, location, and history affected farmers' ability to adapt and

innovate, ultimately determining the extent of their vulnerability to urban development forces. In the final analysis, the question of agricultural viability in rapidly urbanizing areas may be more of a regional-level problem than anything that can be remedied by innovation andentrepreneurialism at the farm level alone. As discussed in the final chapter, addressing thenegative impacts on farm viability resulting from decades of accumulating u rban pressures will require solutions that go beyond the farm level.

Viewed from the county level, the direct market sector only comprises around 8% of sales (USDA, 2019), a relatively low proportion of overall farmgate sales. As an economic engine, localfood production is still largely viewed as a niche or a specialty. The sector is marginalized in political and economic realms. Stakeholders struggle to “make the case” for local agriculture and the forces of development prevail. These are important factors to consider on a transitional path to food system transformation. Unfortunately, achieving more agroecological farming practices or direct market relationships with consumers does not ensure that farms will stay in the business of producing food.

Several farmers recognize that sustaining agriculture means maintaining a diversity of farms in the region, and they advocate for this in the policy arena. Farmland fragmentation results from land loss and tenure challenges, which impacts biodiversity at the landscape level (Brabec and Smith, 2002; Vermont Natural Resources Council, 2013; Sklenicka et al., 2014). As farmland is converted for development, farms are increasingly disconnected from one another and ecosystem services are diminished. Losing neighboring buffer areas affects wildlife habitat and limits options for biological pest control. Habitat fragmentation generally adversely impacts biodiversity (Fahrig, 2003). Yet, regarding biodiversity, conservation organizations such as FOCC and Intertwine Alliance primarily focus on parks and trails, creek corridors, greenways, and wildlife preserves. While such open space preserves contribute to urban sustainability, the surrounding intense development, fragmentation, and loss of connectivity via sprawl, can reduce ecological integrity (Esbah, Cook, and Ewan, 2009). The accumulating impacts of urbanization on agroecosystem connectivity and biodiversity at a landscape level warrant more attention.

Farmers also contribute to the region by stewarding their land and natural resource assets in knowledgeable and innovative ways. Urbanization, in contrast, significantly disrupts the water infiltration capacity, causing increased runoff and decreased groundwater recharge (Dunne and Leopold, 1978). Study farms institute practices that invest in soil quality, enhance ecological diversity, and conserve water. The multifunctional attributes of this agrifood system also reflect important levels of adaptive capacity (Boody et al., 2005; Hodbod, Barreteau, Allen, and Magda, 2016; Jordan and Warner, 2010).

Future of Farming

A combination of factors is affecting the outlook for the future of local food farming in Clark County. To recap, high turnover occurs at the farm and regional levels. Farm loss isoccurring for all scales of farms in this region, whether commodity, specialized, and/or diversified cropping systems. While farm economic viability needs to be assessed in relation to farmer goals, the trend away from farms that can generate household income is not promising. A higher scale of production appears to

enhance economic resilience potential among study farms, with the most vulnerable farm businesses at the smallest end of the size spectrum.

For instance, the policy tools for conserving farmland are geared to larger-scale operations. Conservation easements are set up for larger deals, even at the county level. Without 50 acres, Clark County's Conservation Futures program does not apply, even with multiple parcels/owners pooling their application. Neither has the GMA been sufficient to prevent parcel size reductions, although legal actions have stopped some county plans that enable land conversion. Without establishing agricultural districts, and even then, small parcels do not seem to stand much chance of perpetual agricultural land use. In addition, direct market farms (and most specialty crop producers) do not qualify for crop insurance offered to commodity producers. There are apparently no workable policy tools in place here to conserve small acreages, or most large ones, so the burden is falling on the individual farms. Family succession is an important indicator of long-term resilience for individual farms. However, having a next-generation family member taking over the farm only applies to one or two study farms. Both are at the UGA boundary and are already surrounded by development. One has recently developed housing on part of their farm. Both lease some of the land they farm to achieve their desired scale for certain crops. These farms are not permanently protected. Because Clark County zoning and other policies are inadequate to protect farmland from conversion, the next generation may have to choose a pathway out of agriculture, as has already occurred in this region.

The evidence and analysis indicate unresolved policy, networking, and infrastructure challenges. This research shows that the reality of rapid development, associated farmland loss, the marginal economic viability of farms, and other turnover drivers (e.g., age, goals, and successors), are coupled with less than ideal support networks. The urban markets are persistent, growing, and essential, but not always consistent or sufficient. Market outlets sometimes close or do not effectively cover costs of participation. High rates of farmer vendor turnover were observed at some farmers' markets. Ultimately, the loss of food-producing farms signifies a lack of resilience at the farm level and the market level. This calls into question the local food production sector's ability to meet the demands for local farm food, even at a modest niche level. Stakeholders face considerable obstacles in their efforts to promote local agriculture and agricultural infrastructure. Farmers' voices have not been loud enough to stimulate a more concerted effort for farm coordination and food system support.

This research also found that support organizations, such as the FSC, Extension, and the Conservation District, lack effectiveness in facilitating adequate support and solutions. For instance, the fundamental solutions recommended by farmers and agencies have not been implemented (Agricultural Preservation Advisory Committee of Clark County, 2009).

This research also found numerous examples of local food and farming policies that could be improved. For example, the current use property tax program is problematic on several counts. The right-to-farm ordinance does not cover substantial changes in operations, such as transitioning to produce market farming from commodity field crop production. Farm stand regulations and permits are challenging. These are just some of the issues farmers are referring to when they complain about "regulatory burdens." Furthermore, conservation strategies that could compensate farmers for

their development rights have not been enacted despite such policies being in the Clark County planning documents. Conversion seems almost inevitable because farmers have so much equity tied up in their land and will need retirement income. This research has revealed a major disconnect between the policies needed to protect farmland and the current pro-development positioning of county government. A stronger local policy-oriented advocacy coalition is needed to counter this direction and advance farmer interests to strengthen the local food system.

The county policy arena is problematic. The high land values and lack of secure farmland tenure, along with farm turnover, combine to further erode economic viability. A resilience perspective shows that feedback loops between the multiple variables are helping to keep the system from moving on a pathway toward greater sustainability. When locked in to such undesirable resilience, transdisciplinary solutions are required across the social, political, economic, and biophysical realms to achieve desired food system transformation (Oliver et al., 2018).

Recommendations

This case study depicts a regional food system in transition. Farms were lost, farms persisted, farms transformed their business model, and new farms emerged. Such high turnover among study farms and other farms observed indicates that the future resilience of food farming in this region is at risk. Comparing farmer needs and support offerings, more concerted efforts will be needed to fill in the gaps if the goal is to retain and enhance local food production capacity. Many of the farmer requests for support are not new given the lists of solutions offered in previous studies. Overarching findings suggest a call to action in the following six areas.

Center Farmer Perspectives

As key participants in the agricultural economy, farmers supply products, educate consumers, and build community capacity. They also provide valuable stewardship of natural resources and ecosystem services. Most farmers are by nature adaptable and institute innovative strategies to different extents to strengthen their resilience (Darnhofer, 2010). However, many aspects of food systems can inhibit resilience according to a comprehensive review of recent research (Oliver et al., 2018). Here, rather than enhancing the food farming situation, the downward trends are being reinforced by an unfavorable policy environment and a lack of capacity arising from an under-resourced support infrastructure.

Farmers know what they need, but support organizations and concerned citizens have not responded sufficiently. To support farmers, heeding their input about their needs and realities could be effective in driving the system change needed to support more collaboration across and within sectors. While farmer voices have been marginally involved in organizations such as FSC, and are specifically targeted by Extension services, farmers' needs are not afforded adequate attention. Farmers could be given more agency and leadership capacity.

Farmer recommendations from past policy and advisory engagement efforts have not been implemented. New emerging ideas must also be welcomed and endorsed. For example, farmer-led

cooperation initiatives warrant the full support of organizations and agencies, especially as these institutions are designed specifically to support local farmers. Extension is well-suited to facilitate colearning to advance agroecology in urban regions (Diekmann and Ostrom, 2020). Farmer networking and collaboration must be facilitated by existing support organizations to help build capacity and address farmer isolation from one another. For example, farmer-owned cooperatives could compensate farmers and build equity at the same time. Farmers Only conferences are in great demand, but existing opportunities are not inclusive of all types of farmers, and key conferences have space limitations. For example, one farmer described a farmer-only gathering sponsored by one of the primary produce distributors in the region as being a too-exclusive event (Farm I). Farmer scholarships are offered for Tilth Alliance and Farmers Market Association events, but here again, there are application hurdles and funding limitations (participant observation). Farmers are busy, as well, and often prioritize farm work, especially if they have already attended conferences in the past (Farm A). If supported by formal organizations, the current informal farmer collaborations could better engage in knowledge sharing and help drive collective solution-building. The most resilient farms have an infrastructure of support from their family and friends, but most of these venues are under the radar and not serving the wider food system. Farmers have limited time and capacity to coordinate among themselves without support.

Also, consistent support is needed over time. For example, Extension's "Women in Agriculture" conferences generated a group of women who wanted to stay connected to support each other and learn from one another. However, the Extension system had insufficient resources to continue holding meetings or even maintain a listserve. Public agencies such as Extension need enough county and state financial resources to fulfill their missions. The FSC is well positioned to advocate for adequate resources. FSC members represent several key agencies and multiple stakeholders, and could therefore coordinate to facilitate financial resources, strategic food system planning, and a comprehensive directory of farms and resources. The FSC could help build a coalition to advocate for crucial policies and infrastructure needs. Furthermore, farmers have long advocated for an independent ombudsman position to represent farmer perspectives in local policy decisions (Agricultural Preservation Advisory Committee of Clark County, 2009). Farmers need a go-to entity that will address their needs directly or by building a team of support from a broader network of expertise. The primary recommendation of this research is to heed their voices and support farmers' leadership, networking, and self-organizing. Farmers deserve direct technical services. These recommendations align with other research highlighting the need for diverse farmer participation, appropriately reformed policies, and stronger ties between farmers and other urban citizens (Clark, Inwood, and Jackson-Smith)

Track Critical County-Level Data

Current reliable data are lacking that would aid in local food and farm policy development. The county is obligated to update information regarding the agricultural sector. The county must be accountable for farmland-related ordinances, zoning mandates, and the GMA provisions more broadly. The county should re-instate an agricultural commission of farmers, agencies, and other advisors to confirm, update, and implement the 2009 recommendations. Specifically, an area-wide agriculture plan, required under the GMA, is needed to help prevent the loss of agricultural capacity.

The county's refusal to conduct such a plan may have been a factor in the county-supported 600-acre conversion proposal to be deemed illegal by the growth management board (Bannan, 2019). A county-wide inventory and map of farmland and actual farms are long overdue. The last attempt was in 2007 (Globalwise Inc, 2007).

A complete census and an agricultural commission would serve farmland protection interests, market development initiatives, and network collaboration needs. Tracking farms and farmland, in a systematic manner, would drive more responsive collective action. For instance, there is a lot of information housed in Extension, the Conservation District, and the NRCS. Data about farms and farmers, specific to agency programs, and other local knowledge among farmers, could be compiled without revealing specific identities or sensitive information, such as by using academic research standards. Additionally, a comprehensive market feasibility study could address small-and mid-scale farms and market enterprise planning needs such that individual and regional investments could be Made.

Institute Farmland Protection Initiatives

The results of this research provide further justification for supporting farms and protecting farmland to build a more positively resilient local food system. Conserving what remains of agricultural land and farms is essential. At a minimum, a zero net loss policy is recommended by FOCC (Wait, 2017). Given the high rate of land conversion and sprawl, existing policy measures must be implemented such that the retention of land in farming is more effectively enabled. TDR and agricultural districts are obvious policy options for the county to enact. TDRs are already called for in the county's Growth Management Plan, and an implementation plan was developed (Berk Consulting, 2012; Forterra, 2012).

One agricultural district proposal facilitated by the Conservation District came close to fruition. The county should enact agricultural districting provisions of the GMA. Land trusts should incorporate small-scale conservation strategies aligning with urban area market garden realities. Land trusts should spearhead a network approach that enhances connectivity and open space corridors to alleviate further fragmentation. The county and local institutions must support small-scale agricultural land protection policy reform. These structures are essential, especially as the prodevelopment forces dominate in a challenging socio-economic context. Additionally, more creative and innovative options should also be pursued in tandem with emerging agrifood movement actors. For example, various innovative models are being offered to serve young and aspiring producers, such as the Agrarian Trust, Greenhorns, and Young Farmers Coalition with a chapter in Washington (Wait, 2017). The Agrarian Commons is a "new land tenure model" to foster long-term leases held in trust for the new generation of farmers, with one starting up in the Puget Sound area of Washington.[xxi] Linking up with US Food Sovereignty Alliance's (USFSA)[xxiv] initiatives could also provide more cross fertilization, model replication, movement-building, agroecology awareness, and scaling up of agroecological enterprises. The USFSA fosters an inclusive, participatory action approach that focuses on marginalized and underserved producers, especially farmworkers (Participant observation, USFSA National Assembly, July 2018). Some researchers

have called for “convergence” across diverse contexts aimed at agrifood system justice movement-building, with USFSA as an exemplary working model (Brent, Schiavoni, and Alonso-Fradejas (2015). Even as labor issues continue to be a significant barrier to farm viability, there remains a deficit of institutional response. If conducted as participatory research, the needed mapping and inventory work could foster greater awareness and networking while building a comprehensive set of ground-truthed data on farms and farmland. The system needs innovative support for improvements and programs to overcome the economic barriers to farming, land tenure, labor, and resource accessibility.

Coordinate Educational Resources and Technical Assistance

Farmers need educational resources that directly address specific farm-level needs. They need more coordinated information, direct technical assistance, and access to advanced expertise on ecologically-based farming and direct marketing topics. If networks of providers were more coordinated, more gaps could be filled. Collaboration and cross-fertilization of ideas should be pursued among the various public education providers, food supply chain networks, nonprofits, and food security organizations. Such coordinated educational support could also benefit market organizers and build capacity for developing farmer organizations and knowledge-sharing Networks. Having overlapping and mutual goals can actually be a sign of resilience, provided the institutions are collaborating effectively enough. Viewing the network of food system supporters as a complex adaptive system comprised of interdependent participating institutions, supports the need for collaborative governance and deliberative democracy, particularly applicable in a fragmented context (Booher and Innes, 2010). In both policy and practice, local institutions should demonstrate more concerted efforts. Organizations could buffer one another by having some levels of redundancy without undue competition for financial resources. Forming stronger cross-organizational partnerships could build complementarity and develop synergies that can ensure gaps are filled.

Advance Local Policy

The local FPC has moved away from policy advocacy and policy education since its inception as the Clark County Food System Council (FSC) in 2008. This trend must be reversed if the FSC is to fulfill its mission. The literature shows that such FPC work carried out at a local level can be crucial to sustaining precarious community food systems in urban regions (Clark et al., 2020). Much of the earlier work of the FSC is still valid. The FSC recommended the county government establish mechanisms to identify, maintain, and protect productive agricultural lands (Clark County Food System Council, 2013). The FSC supported the recommendations of the Growing Healthier report (Clark County Public Health, 2012) to improve equitable access to locally produced food, support the “widest variety of agricultural crops and products,” and pursue food production opportunities on suitable public land (FSC, 2012). These documents should be updated and resubmitted, especially as the county faces another cycle of growth management plan updates. To help overcome the current adversities, policies need to directly address the vulnerability issues that farmers face, including finding ways to facilitate access to direct services, information, knowledge, and skills (Oliver et al., 2018). To fulfill its bylaws, the FSC must aggressively advocate for farmland protection

and engage in dialogue with a more diverse spectrum of farmers and otherwise underrepresented citizenry.

The FSC can return to its original purpose of effectively influencing policy. Given the multi-stakeholder membership, FPCs are uniquely positioned to overcome institutional silos and missions, coordinate inter-organizational strategies, and build effective coalitions (Clark et al., 2020; Harper et al., 2009; Scherb et al., 2012). The strategies currently being pursued by the FSC are insufficient to prevent agricultural capacity from de clining further. Thinking from a resilient systems perspective, more effective engagement strategies could be utilized to build inclusive public input processes and increase community participation in policy building (Howard, 2012). Several key FSC strategies are called for that involve government, including a more "comprehensive dialogue and assessment of the current food system," making recommendations to address healthy food access issues, researching and reporting, and "advocating for and advising on food system and food policy implementation" (FSC Bylaws, 2020).

One policy measure that would address a multiplicity of problems, would be the funding of the Conservation District via the County imposing parcel rates and charges on landowners tax bill. Under this program, several agricultural support opportunities could be budgeted. There could be an agricultural advisory commission, farm sector representatives, and direct technical assistance opportunities. The CCD could own and share more equipment, hold conservation easements, conduct needed research, and build infrastructure in a variety of ways. Counties with these fee-supported programs in Washington, such as King, Snohomish, and Pierce, have instituted comprehensive agricultural programs. The CCD could support the FSC to initiate an independent coalition across sectors, as needed to solve the multiplicity of problems in the food system. The irreversible loss of food farm capacity is alarming, which is further thwarting the potential for the vision of a resilient local food system, and signaling an urgent need for action.

Conduct Future Research

Future research could address several questions that emerged from this assessment. For example, does diversity alleviate undue competition in the market by enhancing collaboration potential? Or, would less diversity help aggregation potential? What is an ideal level of buffering and/or redundancy, for farms and/or for the sector? A system-wide analysis of market channels could engage stakeholders in pursuing the most resilient strategies. This participatory action research theory of change requires the participation of the subjects of research in problem identification, in the research process, and in the formulation of solutions. Learning and feedback are key components of resilience across realms, as can be advanced through participatory monitoring and participatory research (Cabell and Oelofse, 2012; Milestad, Kummer, and Vogl, 2010). Participatory action research is an important system condition that could help promote the scaling up of resilient agroecological approaches (Nicholls and Altieri, 2018; Mendez et al., 2017). As such, the ideal would be stakeholder-led, community based research carried out jointly with agroecologists. The farm resilience assessment framework presented here was originally conceived as a practical tool: the FRAT, that farmers could employ to assess the resilience of their own farming

systems to guide their decision-making. This research offers a useful pilot for further developing such a transdisciplinary approach to assessing agrifood system resilience.

Given a systems analysis, future research could also stimulate an exploration of alternative ways of viewing the local farming niche and scale of operations. The urban agriculture points of view may be more appropriate than the rural view in this case. Clark County planning documents designate "urban" as requiring policies recognizing the smaller scale nature of urban agriculture, including community gardens (Clark County FSC, 2013; Pubic Health, 2012). This research assessed mid-scale operations within urban areas and micro-farms in rural neighborhoods. Defining the urban interface and the transition trajectory could help guide the diversity of interventions needed.

Clearly, the current entrepreneurial viewpoints are not ensuring the resilience of food farming in this rapidly urbanizing region. The transition from production-oriented farming to multifunctional agriculture is knowledge and management intensive and requires different skillsets and learning processes (Seuneke, Lans, and Wiskerke, 2013), a concept that some have termed "ecological entrepreneurship" (Marsden and Smith, 2005). These forms of knowledge are not currently available through existing farmer education programs, but could be facilitated through stronger peer-to-peer learning and mentoring networks. Furthermore, this research shows the need for farms to be situated within specialized networks of support beyond simply selling their products directly to consumers.

On a more fundamental level: What would it take to recognize food farming as a service to the community, so as to justly compensate farmers? What if food production was tied to access to healthy food as a human right? One policy solution would be a program that guarantees a living wage, specific to food production, whereby farmers and farmworkers are acknowledged as essential service providers. In any case, acknowledging the need for subsidy and valorization could solve multiple issues.

This research confirms an urgent need to build farmland retention strategies inclusive of the smallest scales and limited acreages involved. All scales are needed, but the small farms have no options for conservation from existing programs. This gap spans urban, suburban, and rural parts of the county, as would be confirmed by an inclusive region-wide assessment. Agricultural districting to encompass the whole county, including the existing neighborhoods within the UGA, would provide for a basis of realizing food farming resilience in this rapidly urbanizing region.