

# Maps and Prioritization

**Prioritization.** The County sought to improve its local process for identifying high priority farmland to be preserved. This grant contributed to this goal by reimbursing the County for time spent constructing a GIS layer identifying farmland, farming activities, lands already preserved through purchase of development rights or conservation easements, as well as identifying factors to be used in prioritizing lands for preservation (i.e. soil quality, agricultural qualities and viability, environmental values, vested lots (threat of development), owner willingness, and the like).

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**1. GIS layer and maps.** The County has constructed a GIS layer identifying farmland, farming activities, and lands already conserved through purchase of development rights or conservation easements. Attached are the following maps:

- Conservation Lands for Sequim Dungeness Planning Region (SDPR), Port Angeles Planning Region (PAPR), and Straits (SPR) and Northern West Planning Region (WPR). These maps show all conservation easements held by Clallam County, the North Olympic Land Trust, Cascade Land Conservancy, Washington Department of Fish and Wildlife, and Washington Department of Parks and Recreation. The County developed a GIS database containing relevant details of all these sites. Attached to these maps are the summary sheets of two farmland conservation projects that involved the direct involvement by the County:
  1. Schmidt farm in Agnew (the Farm and Ranch Lands Protection Program, administered by the Natural Resources Conservation Service)
  2. Brown farm along the Dungeness (Farmland preservation account, administered by the State's Recreation and Conservation Office)
- Current Use Agriculture and Agricultural Activities for SDPR, PAPR, SPR, and WPR. These maps show the location of the a) Agricultural Retention (AR) lands, b) lands enrolled as Current Use Farm and Agricultural Land (as defined pursuant to RCW 84.34.020(2)), and c) lands identified in the 2006 Clallam County Farm Inventory, as follows: During the period of March to September 2006, the Clallam Conservation District partnered with the County to perform an inventory of farms throughout the County. Conservation District personnel drove all County roads to visually inventory and characterize farms, using aerial photographs and parcel maps to determine parcel size. For the purpose of this inventory, land was classified as a farm not by value of products produced or sold as defined by the USDA but whether horses or livestock were present (even if at limited numbers) or whether an agricultural product was produced (hay, grain crops, wineries, produce, nursery crops, etc.). Small backyard operations were not inventoried unless there was evidence that they were selling an agricultural product. A total of 1,252 farms were inventoried, totaling approximately 22,224 acres: 805 farms had horses; 404 farms had livestock such as cattle, goats, pigs, sheep, and llamas; and 232 farms produced an agricultural product.
- Prime Soil Classes for SDPR, PAPR, SPR, and WPR.

**2. Prioritizing land for conservation.** There are various mechanisms available for devising a land evaluation system that would rank properties in terms of priority for conservation. A good summary is contained in the following excerpt from "A systematic framework for prioritizing farmland preservation" by Elia A. Machado, David M. Stoms, Frank W. Davis, University Of California, Santa Barbara, National Center For Ecological Analysis And Synthesis, Report to The Resources Agency Of California, August 2003:

Lynch and Musser (2001) describe the characteristics of a desirable parcel for the Maryland Farmland Preservation Programs as "large number of acres, high percentage of prime soil and of crop land, near another preserved parcel, near a metropolitan area, near the closest town, and with a low percentage of pasture and forest acres". They also describe how goals of the programs may compete and trade-off. For instance, threat correlates with higher cost, which reduces the area of land that can be acquired for a given budget.

Budget constraints are certainly a concern for all land preservation strategies. However, there is no uniformity in the way cost is considered. For instance, some PDRs programs operate in a first come first served basis; in others the farmers bid to enter the program once their parcel meets some minimum requirements (e.g. Delaware and Maryland), still others (e.g. New Jersey) combine a scoring system with an option for the farmer to offer a discount for ceding his or her development rights. In Connecticut, applications are penalized if the estimated cost of purchasing the development rights exceeds \$10,000 per acre (McCarthy and Frisman 2000).

The Land Evaluation and Site Analysis system (LESA) has been widely used by local and State governments to guide agricultural zoning and to implement farmland protection through PDR and TDR programs (Ferguson, Bowen, and Khan 1991; Pease et al. 1994). It was developed by the Soil Conservation Service in 1981 as a tool to address farmland conversion to non-agricultural uses (Wright 1994). Soon after its design, it was adopted as a federal tool to evaluate the effects of federal programs on farmland protection and to ensure their compatibility with state, local and private policies to protect farmland as mandated by the Farmland Protection Policy Act of 1981.

LESA consists of two parts, land evaluation (LE) and site assessment (SA). The LE part rates the land for crop production and is designed by SCS and local Soil and Water Conservation Districts. The SA component, which is designed by local officials, includes factors other than agricultural productivity. For instance, the California LESAs system includes two LE measures, Land Capability Classification and Storie Index ratings, and five SA factors including project size, water availability, surrounding agricultural land and surrounding protected resource land ratings (California Department of Conservation 1997). A final composite score on a 100- point scale is calculated as a weighted sum of the criteria scores.

Although LESAs is considered a valuable tool to help decision making in protecting farmlands, it has shortcomings for prioritizing farmland preservation. Criteria weighting tends to be fixed and implicit rather than flexible for sensitivity analysis and generation of alternative conservation scenarios. Threat is often measured indirectly using variables related to potential for development. Also, conservation costs are generally not explicitly included as a scoring factor. Some agencies consider the willingness of the landowner to discount part of the price of the parcel as a decision criterion besides the LESAs score (Delaware Department of Agriculture). Some criteria can only be assessed by direct observation through a field visit.

Coughlin (1994), in an evaluation of several LESAs systems, concluded that often two or more SA factors were correlated. He also referred to score ambiguity issues and the concern that the effects of changing factors weights may not be very intuitive. Ferguson, Bowen, and Khan (1991) concluded that LESAs could be susceptible to manipulation and was difficult to update or adapt over time.

Prior to the advent of modern database and computerized mapping systems, manual methods were used to identify and establish farmland preservation priorities based on land use and land capability classification maps. The process was tedious, subjective and prone to errors (Ferguson, Bowen, and Khan 1991; Tulloch et al. 2003). Although manual point scoring systems are still being used to prioritize farmland preservation, the trend is to automate the system.

The LE part of LESAs was automated in the early 1980s through a Computer- Assisted Land Evaluation System (CALES) program designed originally by the Corps of Engineers Research Laboratory to use soil survey data from the NRCS NASIS database (US Department of Agriculture 1991). More recent efforts employ Geographic Information System (GIS) technology. The LESAs system has been automated using GIS software for different purposes in Hawaii, Illinois, Kansas, Oregon, Vermont, Delaware, and Pennsylvania (Pease et al. 1994). For example, researchers at Pennsylvania State University developed a LESAs ArcView GIS interface for prioritizing counties' applications to the Pennsylvania's Agricultural Conservation Easements Purchase Program. The LE of parcels is based on its soils productivity whereas the SA includes three factors, development potential, farmland potential and clustering potential. Each of these is characterized by several subcriteria specific to each county (National Consortium for Rural Geospatial Innovations 2000).

Tulloch et al. (2003) describe their attempt to automate a manual bottom-up process of farmland parcel prioritization and to extend it to a top-down evaluation for Hunterdon County, New Jersey, USA. The authors used the criteria currently in practice—soil productivity, compatibility of adjacent

land use, local commitment to preservation, farm size, density of easements in the neighborhood, and farm management practices. These criteria emphasize viability of farming but do not address threat or cost-effectiveness, although the state of New Jersey lists those as general guidelines (Tulloch et al. 2003). Each of the five criteria is based on a prescribed point scoring system. For instance, the soil productivity score for a parcel is a weighted sum of the relative proportions of a farm in various categories of importance (i.e., prime, statewide importance, unique, or local importance). The maximum points for each of the five criteria carries an implicit weighting of their relative importance in addition to the weighting of the subcriteria such as that mentioned for soil categories. Total conservation value is based on a simple sum of the individual criteria scores. Tulloch et al. (2003), encountered difficulties automating some of the criteria, specifically management practices, illustrating the asymmetry of information held by planners and landowners. On the other hand, they found GIS automation reduced the opportunities for error and subjectivity inherent in the manual processing.

In summary, there are a wide variety of tools and approaches to farmland preservation that we have considered in developing our framework. Our model, however, constitutes a distinctive approach to the farmland preservation problem in several key ways.

- The emphasis of most approaches has been bottom-up and opportunistic. Our strategic top-down approach is proactive and prioritizes conservation investment priorities within the state or region as required for CLP.
- Most existing approaches are not oriented towards an exploratory collaborative decision making system. We propose a framework with variable weights for each conservation objective, so that different stakeholder preferences could be used to generate and evaluate alternative farmland preservation scenarios.
- Threat is generally treated as one criterion on par with criteria such as soil capability or compatibility of farming with local land use. In our framework, threat is embedded in each objective as a measure of the potential loss of the corresponding resource; each kind of threat pertains to a specific resource value. Our assessment of conservation value is based on expected future condition rather than current condition.
- We integrate the costs of the conservation action within the strategic allocation model, which results in a more efficient and transparent way of allocating funds.
- We take an economics perspective that argues that the marginal benefit of conserving a unit of farmland diminishes as the amount of farmland preserved in a region increases (Hughey, Cullen, and Moran 2003).

Whatever evaluation system is used, is a clear that an evaluation system requires the consideration of a variety of criteria, will take time to develop and field-test, and will require a significant time commitment from the community members who participate in the process.

**3. Local circumstances** While evaluating farmlands for the purpose of establishing priorities is considered a key element of any conservation program, so is raising the necessary funds to accomplish the conservation (most often by purchasing and extinguishing the land's development rights). Currently, the County does not itself have a mechanism to raise funds for farmland conservation. Such a mechanism will not likely be devised in the near future, based on the results of a recent local public opinion survey and the current economic situation.

While the County does not have its own funding mechanism, as a "local agency" pursuant to the State's Farmlands preservation account at RCW 79A.15.010, the County does qualify as a sponsor under its conservation acquisition grant program. For instance, in 2009, the development rights of almost forty-four acres of prime Dungeness Valley farmland were purchased and extinguished with state funds from the Farmland preservation account, administered by the State's Recreation and Conservation Office, with a match raised by local non-profits.

While Clallam County does not have a mechanism to raise the match required by most grant programs, Clallam County does, however, have a working relationship with two local nonprofits that have not only proven to be very effective in raising match, but offer other expertise as well:

- Friends of the Fields is a 501(c)(3) nonprofit corporation which was specifically founded in 1999 to give farmers who are ready to retire another option, while preserving Clallam County's productive

farmlands, and as such, is uniquely positioned to identify properties that are in danger of being converted.

- North Olympic Land Trust a non-profit conservation organization protecting Clallam County's significant ecological resources, locally important agricultural economies and culturally rich landscapes through conservation easements, legal agreements that eliminate much of a property's development potential which are upheld in perpetuity, and as a result, has the expertise to hold and monitor conservation easements.

In addition to state grant funds and local match, a third source of funding for the conservation of farmlands are federal grants. For instance, in 2006, the development rights of forty-four acres of prime Dungeness Valley dairy farmland were purchased and extinguished with federal funds from the Farm and Ranch Lands Protection Program, administered by the Natural Resources Conservation Service, with a match from the Clallam County Conservation Futures Fund (now depleted with no mechanism of refunding the same).

**4. Funding priorities.** Any local land evaluation system that identifies priority farmland for conservation purposes should incorporate the priority criteria used by those agencies that actually provide the funds, so as to maximize local chances of successfully competing for such funds. The following criteria are the priority criteria for the state and federal grant programs most relevant to local efforts to conserve farmland:

**State Funding Criteria.** Priority for funding under the State's Farmlands preservation account at Chapter 79A.15 RCW lists the following criteria:

- (a) Community support for the project;
- (b) A recommendation as part of a limiting factors or critical pathways analysis, a watershed plan or habitat conservation plan, or a coordinated regionwide prioritization effort;
- (c) The likelihood of the conversion of the site to nonagricultural or more highly developed usage;
- (d) Consistency with a local land use plan, or a regional or statewide recreational or resource plan. The projects that assist in the implementation of local shoreline master plans updated according to RCW 90.58.080 or local comprehensive plans updated according to RCW 36.70A.130 must be highly considered in the process;
- (e) Benefits to salmonids;
- (f) Benefits to other fish and wildlife habitat;
- (g) Integration with recovery efforts for endangered, threatened, or sensitive species;
- (h) The viability of the site for continued agricultural production, including, but not limited to:
  - (i) Soil types;
  - (ii) On-site production and support facilities such as barns, irrigation systems, crop processing and storage facilities, wells, housing, livestock sheds, and other farming infrastructure;
  - (iii) Suitability for producing different types or varieties of crops;
  - (iv) Farm-to-market access;
  - (v) Water availability; and
- (i) Other community values provided by the property when used as agricultural land, including, but not limited to:
  - (i) Viewshed;
  - (ii) Aquifer recharge;
  - (iii) Occasional or periodic collector for storm water runoff;
  - (iv) Agricultural sector job creation;
  - (v) Migratory bird habitat and forage area; and
  - (vi) Educational and curriculum potential.

**Federal.** Priority for funding under the federal Farm and Ranch Lands Protection Program involves the following criteria for the land (which must be part or all of a farm or ranch):

- Contain prime, unique, or other productive soil or historical or archeological resources;
- Be included in a pending offer from a State, Tribal, or local government or non-governmental organization's farm or ranch land protection program;
- Be privately owned;
- Be covered by a conservation plan for any highly erodible land;
- Be large enough to sustain agricultural production;
- Be accessible to markets for what the land produces;

- Be surrounded by parcels of land that can support long-term agricultural production; and
  - Be owned by an individual or entity that does not exceed the Adjusted Gross Income (AGI) limitation.
- **Local non-profit.** Both the listed state and federal programs require 50% match. As the County currently does not have a funding mechanism, this match must be raised by non-profits. Clearly relevant then as well are the priorities of the Friends of the Fields and the North Olympic Land Trust, which are “properties that are in danger of being converted” and “locally important agricultural economies.”

## **5. Conclusion.**

Since the County does not currently have a mechanism for raising its own funds for conserving local farmland, local farmland conservation projects must look to state and/or federal grants for funding, with any necessary match raised by local non-profits. Each of these three funding sources, federal, state, and non-profits, have their distinct priorities. A key to successfully accessing these limited funds is to consider those priorities for adoption into any local land evaluation system that should be devised in close cooperation with Friends of the Fields and the North Olympic Land Trust.