

AGRICULTURAL SPACE PLAN

LUSCHER AREA MASTER PLAN



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LUSCHER AREA MASTER PLAN
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INTRODUCTION

In July of 2013 the Lake Oswego City Council adopted the Luscher Area Master Plan (referred to as LAMP hereon). The LAMP was a culmination of community groups, Council appointed advisory committee, professional and staff development of a long term guiding document for the 151 acres of park land that make up the Luscher Area. The direction of the planning process is summed up in the Executive Summary (page iii):

“This plan recognizes and respects the qualities of this area as it seeks to accommodate the social, recreational and educational needs of the community. enjoying natural resources, interacting with local history, playing sports, walking and running on trails, gardening with others, learning, gathering with friends and family, and gaining access to locally grown food.”

The Luscher Area Agricultural Space Plan (Ag. Plan) is considered an addition to the LAMP and is intended to provide a greater level of detail in regards to agriculture and interfacing spaces. The document is a culmination of input from the Friends of Luscher Farm, professional consulting services and staff planning expertise. The intent is to identify and establish future agricultural uses within the properties associated with the Luscher Area Master Plan. In addition to establishing agricultural space the Ag. Plan defines treatment of transitional spaces, buffers and recreational components within the use area. The plan will also identify utilities, infrastructure, and appropriate crop types (identified by annual, perennial and livestock). In many cases specifics of these elements cannot be detailed out until a program or type of production is established within the identified agricultural spaces.

The Ag. Plan continues the spirit of balance between all of the sites’ uses. It provides opportunities for the community to learn, interact and connect with healthy food systems and products.

WHAT WILL THIS PLAN DO AND NOT DO?

The primary assumption is that natural resources take precedent over all developed functions. These areas have been identified throughout the LAMP. Treatment of natural areas will not be addressed within the Ag. Plan but treatment of the interface areas (edge between the two uses) will.

The agriculture plan identifies specific recommendations and maps from the LAMP and other documents. The plan builds on previous plans and analysis to provide a clear guide to developing agricultural space within the Luscher Area. The plan will provide spatial options and flexibility for additional programming. Additionally, treatment of transitional areas and interfacing between different uses are clarified and provide options. The intent is to give the department clear direction for development with the flexibility to adjust for program development while protecting other uses.

The agriculture plan does not the define type of programs or the specific management of identified spaces. Programming and operations is a function of recreational programming staff, department operational goals and management. Some spaces will be more conducive to specific programming themes such as, agricultural education and designated as such. Program development guidelines are identified and utilized by staff on choices for future programming. Guidelines have been developed

based on departmental recreational program practices, space design and experiential aspects of the park. This is the extent of program discussion within this plan.

Because future programs are unknown and each program type will have unique needs it is impractical to address specific locations of infrastructure such as electrical connections and water main locations. The plan will provide a general reference to how these infrastructural components originate and connect from point A to point B.

The plan will address specific traffic flow patterns. (Roads, trails and pathways are identified and provided within the plan area). The plan shows how maintenance, agriculture, visitor traffic flow and interface points.

Agriculture related facilities existing and proposed are identified and a general guide to size, amenities and design theme is included in the plan. Professional architectural services are necessary once implementation of the facility portion of the plan begins.

UNDERSTANDING HOW WE LOOK AT THE AGRICULTURAL SPACE

To provide a thoughtful and comprehensive guide to agricultural program spaces within the Luscher Area several concepts were employed to better understand the space, how it functions and how to create balance between the various uses (historic, agricultural, recreational, public space and natural resources) while maintaining a high level of visitor experience. Finding balance is important since the site is a community wide park (if not regional in scale) where all recreational uses converge onto one site. Since the site is a public space it is the responsibility of the Parks and Recreation Department and community to strive for a balance of uses and to create a space which the majority of the community can feel welcome and connected. This includes respecting passive and active recreational users, habitat and natural resources, historic and experiential qualities of the site and the educational opportunities unique to this location. Agricultural production, food security and access to fresh healthy food is a trend and necessity for the future health and quality of life of our communities. The Luscher Area is in a unique position to provide the opportunity to continue that conversation and provide a site where people can experience, experiment, and perfect fresh, stable, healthy food sources. This includes experiencing a variety of models to deliver these food sources, expanding on our current examples of personal gardening, farm cooperatives and educational gardens.

In addition to providing space for a variety of program examples the site offers many options for the community to connect to these programs directly (a more hands on approach) and indirectly (part of the farm experiencing a backdrop to the overall experience)

Several elements have been identified that are recommended to use during program development within the agricultural program spaces. In order to offer balance and variety in programming these elements considered and are detailed in the program development guidelines section.

“Agricultural Program Space” is defined as the space dedicated to the specific operation of the agriculture related program (example: Community Supported Agriculture, Community Garden’s Demonstration Gardens, etc.). Each agricultural program, by its structure, determines the level of direct public involvement. Additionally, the level of indirect public involvement is determined by default depending on the visual experience for the farm, and the level of access to the actual space by the program parameters.

PREVIOUS PLANNING AND STUDY DIRECTION AND GUIDANCE

PARKS PLAN 2025, (2012)

In 2012 the Parks and Recreation Department completed a department wide System Plan (sometimes referred to a Parks and Recreation Comprehensive Plan) that determined a community based vision and direction for the Department to operate for the next 15 years. This document identifies goals and recommendations. The following goals are from the Parks Plan 2025. For specific recommendations and action areas see the Parks Plan 2025 Chapter 5.

Goal 1 - Investing in existing parks and natural areas:

Making the best use of the City's existing park and recreation resources is the top priority of residents. In the past, community priority focused on enhancing the park system by building new parks and acquiring new natural areas. This Parks Plan builds on those successes, but focuses on improving existing parks, recreation facilities, and natural areas. By reinvesting in its existing assets, the City can increase the sustainability of the park system by protecting its investments, preventing more costly repairs or loss of habitat, making better use of existing resources, and providing additional recreation facilities and opportunities.

Goal 2 - Enhancing stewardship, maintenance and operations:

Closely related to the above priority, is the goal of enhancing stewardship, maintenance and operations – the community's second priority. This priority addresses improvements in maintaining developed parks and stabilizing or restoring natural areas. It also includes several planning efforts that will enhance the City's ability to manage the park system, such as building a coalition of sports providers to advise on the planning and management of sports facilities and updating the City's pricing policy for recreation programs. Finally, it increases public information and community volunteerism to build future stewards of the park and natural area system.

Goal 3 - Providing recreation options:

Lake Oswego Parks and Recreation is the community's partner in promoting active living and addressing the obesity crisis. People are more likely to be active if they can select from a variety of options for exercise and sports, play for children, and opportunities to experience nature. The community's third priority is to provide additional recreation options, including more community gardens and more river access for swimming and boating.

Goal 4 - Filling geographic gaps:

Close to home access to parks has been shown to increase the use of the system, health outcomes and the property value of neighborhoods. The Parks Plan identifies three essential services, Play for Children, Exercise and Sports and Access to Nature which together make up a unit of basic park access. Across Lake Oswego there are gaps in residents' access to one or more of these services. Filling gaps in the system includes adding features, connecting natural areas and in the long-term adding parks to areas beyond walking distance to existing parks. This goal emerged from both public input and analysis but ranked behind the other three goals of the Parks Plan.

LUSCHER AREA MASTER PLAN, (2013)

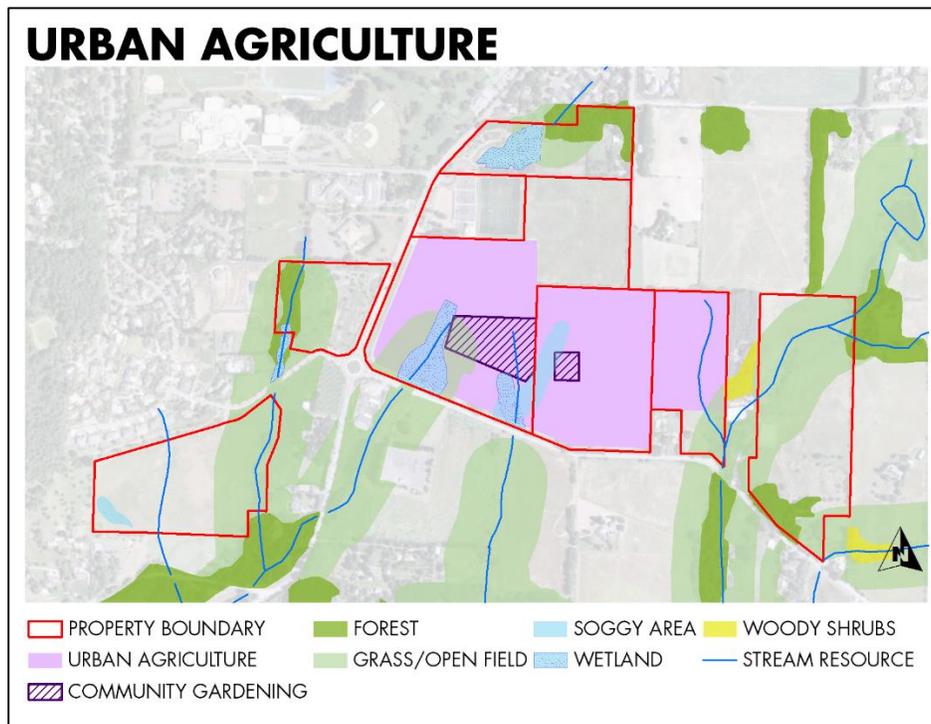
Within the Luscher Area Master Plan (LAMP) a general implementation plan set forth immediate recommendations for the first five years and longer term recommendations for the subsequent years. The recommendations for the first five year period are (reference page 113 of the LAMP);

- *Formation of Friends group*
- ***Agriculture strategy, design, and implementation plan***
- ***Water right expansion; urban farming (Area C)***
- *Historic structure rehabilitation plan*
- *Begin organizing team sport fundraising to support future sport field development*
- *Investigate/establish mechanism in City code to protect historic/urban agricultural areas*

The recommendations for subsequent years, 5+ year (reference page 113 of the LAMP):

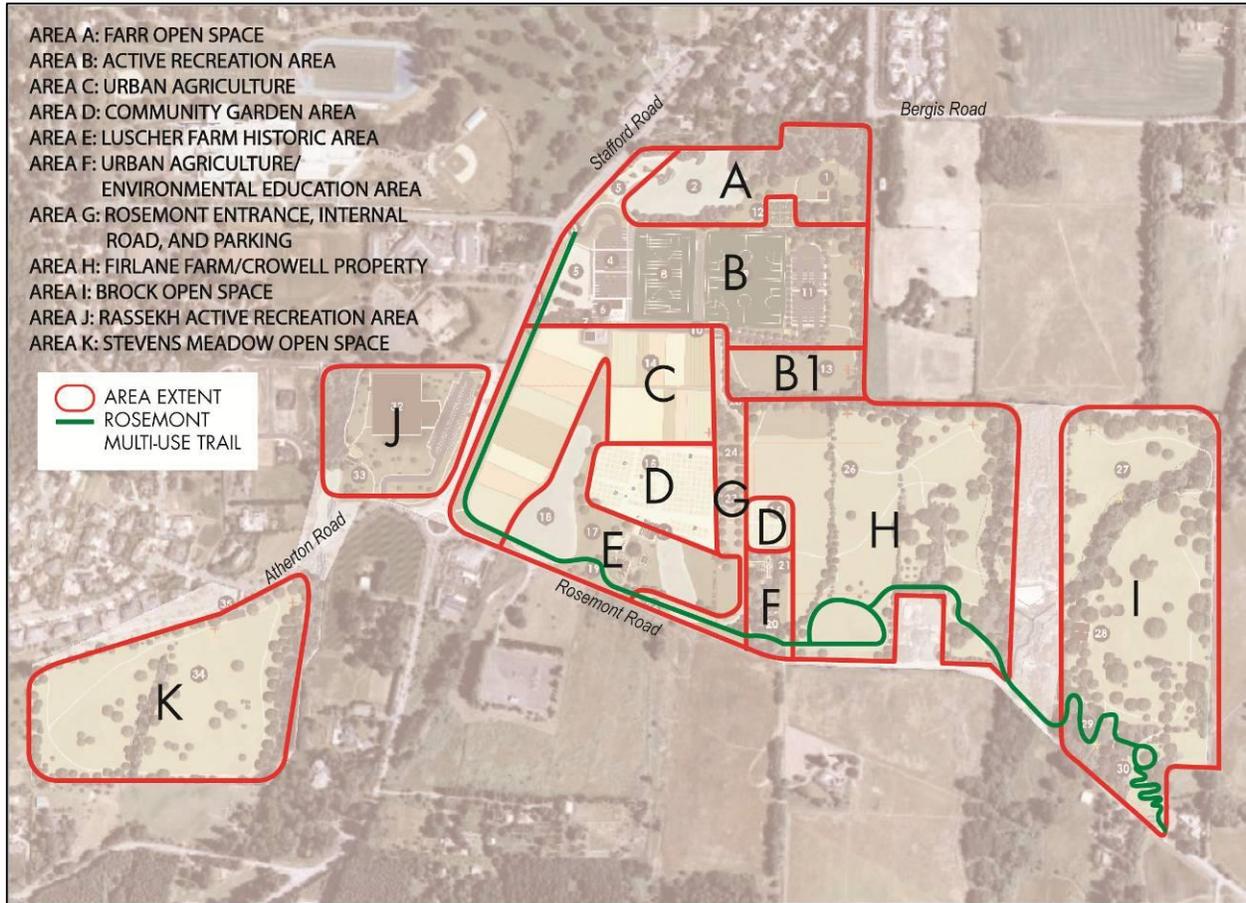
- *Athletic fields & active recreation (Area B, J)*
- *Neighborhood parks & picnic areas(Areas A, E, F, J)*
- ***Urban Ag farming & community garden expansion (Areas C, D)***
- ***Urban Ag/Environmental Educational Center (Area F)***
- *Historic structure rehabilitation & programs (Area E)*
- *Access drive & internal road; parking (Area B, G)*
- *Ropes challenge course & outdoor program facility(Area I)*

The Luscher Area Master Planning process identified an overlay area where possible agricultural expansion areas can occur. This map provided a 30,000 foot level analysis of the site and where agriculture may occur. This overlay area provided a boundary for where agricultural uses would occur on the site. The overlay does not suggest exclusive agricultural use but where agricultural activities would be appropriate.



From the Luscher Area Master Plan, Chapter 6 General Considerations, Page 69

The LAMP also set area specific considerations. The LAMP divided the properties into several areas the refer to the LAMP for specific information regarding each area. .



From the Luscher Area Master Plan 2012, Chapter 6, Site Plan and Area Considerations Section Page 70

Flex Space Area B1 specific recommendations – Page 71

Area C specific recommendations – Page 72

Area D specific recommendations – Page 74

Area E specific recommendations – Page 75

Area F specific recommendations – Page 78

Area H specific recommendations – Page 80

Other Recommendations from the LAMP

Just because agricultural has been identified as a use within the park doesn't necessarily suggest it must occur. A thoughtful approach by programming staff to determine whether current and future programs are relevant and align with the community's desire for agriculture will need to be taken. The LAMP identifies agricultural space on the Core Site Plan (page 67 of the LAMP) as "future urban agriculture if needed".

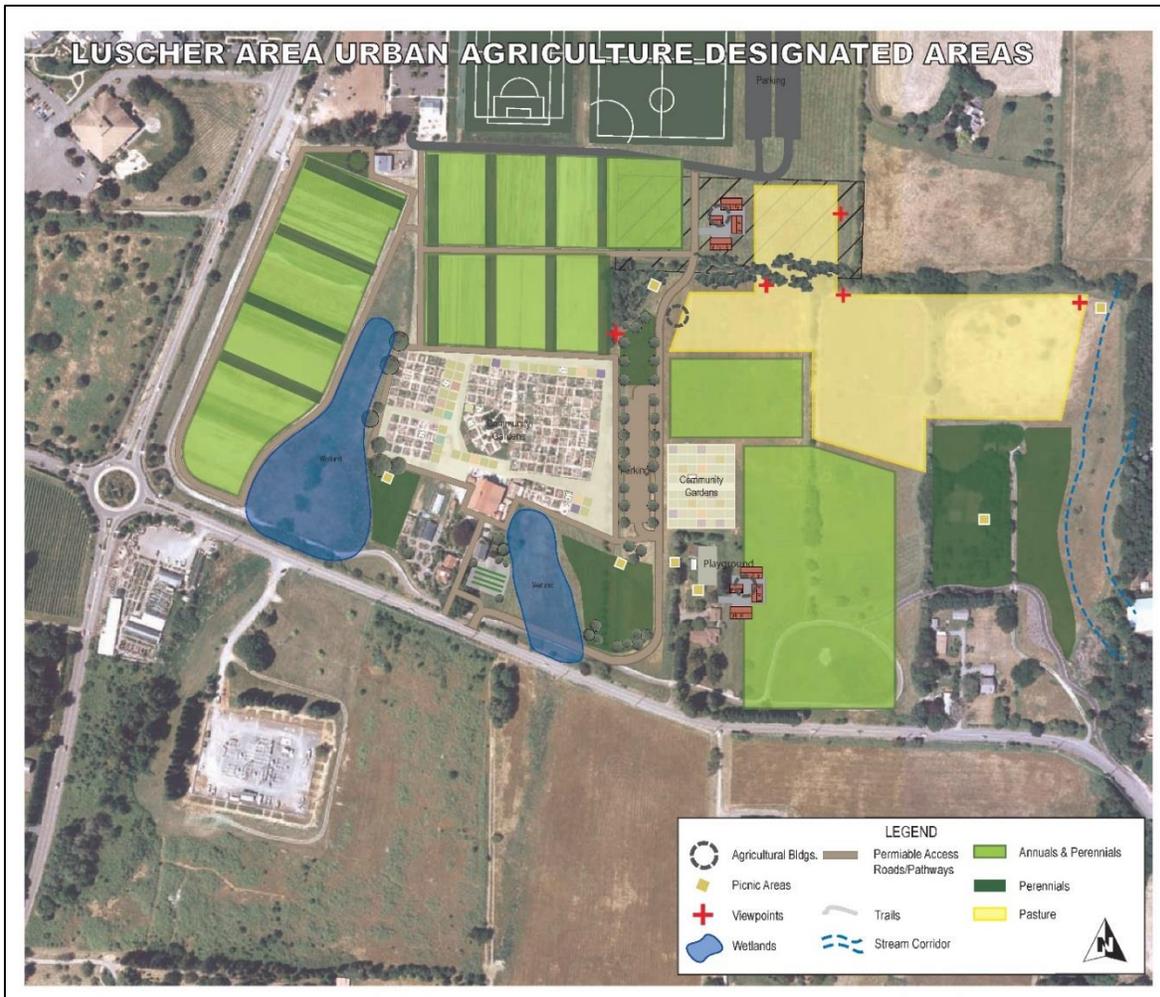
The Urban Ag/ Environmental Education Center has been identified in the LAMP. The vision for the facility is to provide a unique opportunity to for site based hands on learning for both environmental and agricultural topics. Reuse and repurposing is a value identified and held in high regard by the

community. Utilizing the existing facility (Firlane House) is a priority and meets with the Parks Plan 2025 goal of “Investing in existing Parks and natural areas” the following goal is from the Parks Plan 2025.

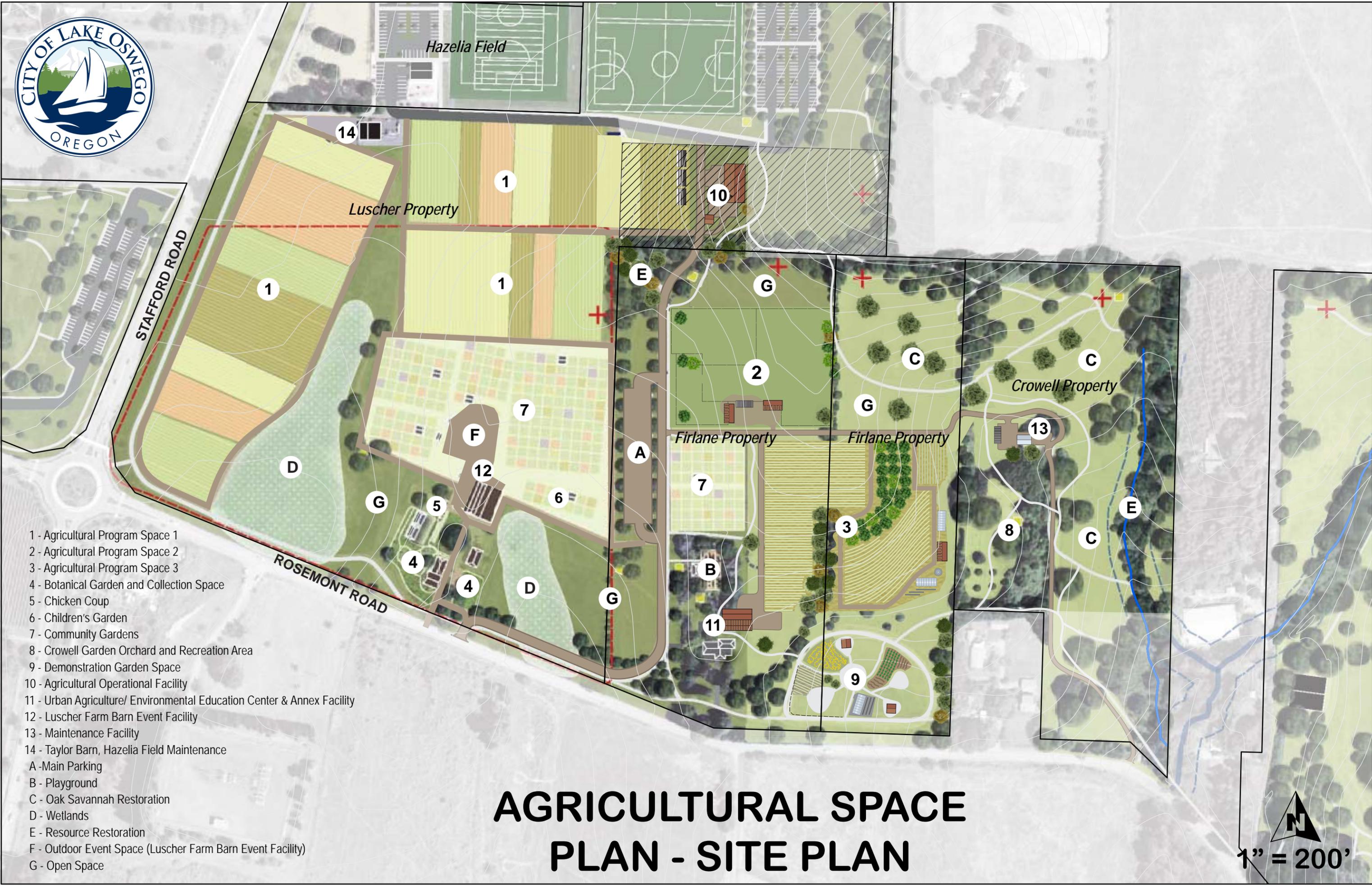
The LAMP also discussed programming. The excerpt has been added to the “Program Development Guidelines”.

AGRICULTURE RECOMMENDATIONS STUDY, (2015)

In 2014, the Parks and Recreation Department (the department) contracted with Josh Volk of Slow Hand Farm (Consultant) to write the “Agricultural Recommendations for Luscher Farm” (Ag. Study) provide insight and a starting point for development of the Ag. Plan (see Appendix A for the full document). The direction to the consultant was to inform where agriculture could occur and what type of agriculture could occur in those spaces. Note, the Ag. Study was confined to the overlay area outlined as “Urban Agriculture” in the LAMP (see map below). Types of agriculture were defined by general categories such as perennials, annuals and livestock. For more specific crop information refer to the Ag. Study Appendix A. The agriculture program areas are derived from this report with modification to account for other uses onsite.



From the Agriculture Recommendations Study 2014,Page 30



- 1 - Agricultural Program Space 1
- 2 - Agricultural Program Space 2
- 3 - Agricultural Program Space 3
- 4 - Botanical Garden and Collection Space
- 5 - Chicken Coup
- 6 - Children's Garden
- 7 - Community Gardens
- 8 - Crowell Garden Orchard and Recreation Area
- 9 - Demonstration Garden Space
- 10 - Agricultural Operational Facility
- 11 - Urban Agriculture/ Environmental Education Center & Annex Facility
- 12 - Luscher Farm Barn Event Facility
- 13 - Maintenance Facility
- 14 - Taylor Barn, Hazelia Field Maintenance
- A - Main Parking
- B - Playground
- C - Oak Savannah Restoration
- D - Wetlands
- E - Resource Restoration
- F - Outdoor Event Space (Luscher Farm Barn Event Facility)
- G - Open Space

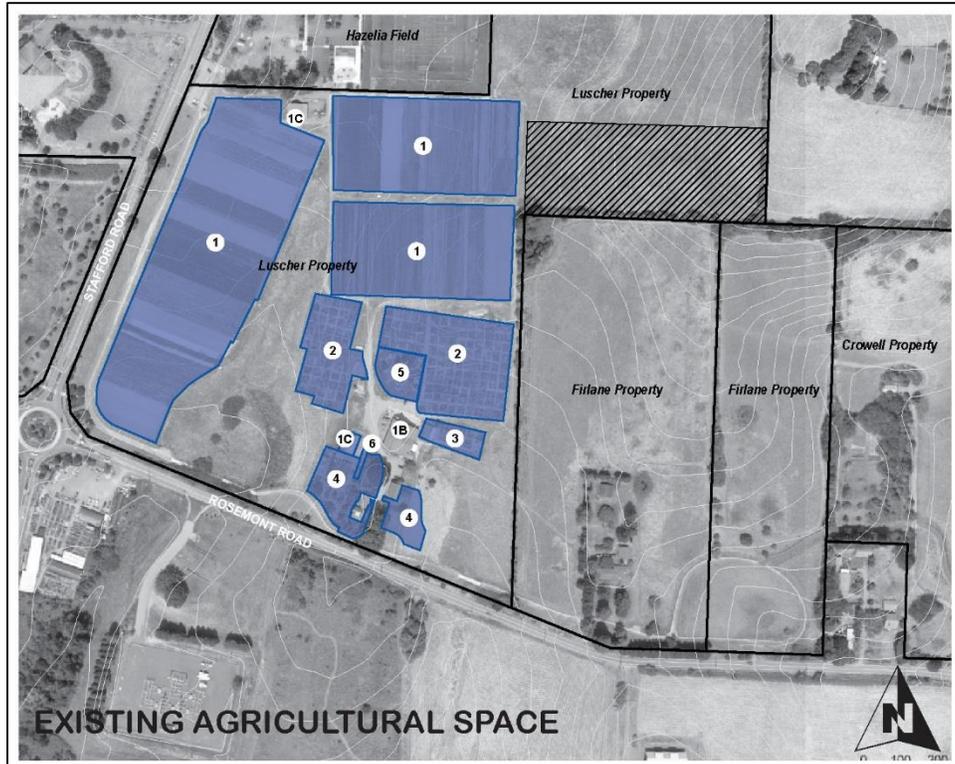
AGRICULTURAL SPACE PLAN - SITE PLAN



AGRICULTURAL SPACE PLAN

INSERT SITE PLAN

EXISTING AGRICULTURAL PROGRAM AREAS



Currently (as of January 2016) the properties that make up the Luscher Area have a variety of “agricultural spaces and programs” there currently is XXX acres of agriculture related space. There are six primary programs and one of which has a vacant partner (see map for locations reference by number below). The following is an explanation of current uses, direct participants and how the space relates to the experiential element of the farm park.

1. Agriculture Area 1

This area is currently utilized by 47th Avenue Farms a Community Supported Agriculture provider. This space is programmed via a contract with 47th Avenue Farms and provides fresh produce year round via a Community Supported Agriculture Program. Produce is obtained from the producer through purchasing a share of the CSA. There are various levels of share from ½ to full share and provide a variety of produce feeding between 1 to 4 individuals. The size of the space is approximately 12 acres of agricultural related use. Typically in the summer shareholders pickup their share of production once a week at the Luscher Barn. The model is based on investing in the producer and operation. The CSA currently utilizes the City’s greenhouse (located near the Botanical Garden, Clematis Collection and the Chicken Coup) which was originally part of the Oregon Tilth Organic Education Demonstration Garden. (1A on the map). Additionally the current programmer uses the Luscher Barn for processing and storage (1B on the map), and a portion of the Taylor Barn (1C) as storage and support facilities.

This space provides a visual experience, both for views into the park from the surrounding homes and traffic and for visitors within the park. The public interaction level is considered low based on the amount of community members directly connected to the space and current program. Approximately 90 shares were sold in 2014/15. A share can ideally feed between one and four individuals. The public is not allowed in the fields due to food security and safety. The space is considered working farmland. The visual value adds to the “farm” experience and is an integral element to the sense of place at the farm.

2. Community Gardens

The community garden space is currently operated by the City of Lake Oswego Parks and Recreation Department. This model provides the opportunity for community members to register and care for a garden plot for personal use. This model is a more individualized hands on approach to production. Garden plots vary from 10’x20’ half plots and 20’x20’ full size plots in total approximately 65,600 sq. ft. of agriculture related space. Plots are cared for annually and have requirements for participation such as, requiring gardeners to volunteer several hours annually to communal space maintenance and other farm related projects. Included in the fee is water, tool use and a variety of other resources.

The community garden space provides a visual experience for visitors and is accessible by tour and meandering. The public interaction is considered medium due to the number of plots in the community garden program (170 in 2015) and the ability for the community to connect directly to the space. This space is a significant element to the “farm experience”. It demonstrates a variety of techniques, styles and flora for visitors including activity from gardeners. The space around the community garden typically experiences a higher level of traffic especially in summer months.

3. Children’s Garden

The intent of the Children’s Garden space is to introduce children and families to gardening, a variety of produce and food sources. The produce is utilized in an educational manner such as cooking classes, gardening classes, tours and summer camps. The space is currently managed by the Parks and Recreation Department. This space occupies 10 20’x20’ plots (4000 sq. ft.)

The children’s garden does add to the “farm experience” and the level of direct public involvement is moderate to high with approximately 1400+ program participants in 2015. Additionally the Children’s Garden is open to touring and meandering by park visitors.

4. Botanical Garden and Clematis Collection:

The botanical garden is a public space maintained by the Friends of Rogerson Clematis Collection (The Collection). In addition to maintaining the garden space the Collection uses additional space for propagating Clematis varieties and protecting rare Clematis varieties. The Collection also offers instructional opportunities to the public through the Parks and Recreation Department.

5. Demonstration Garden (formally Oregon tilth Organic Education Demonstration Garden)

The demonstration garden space was originally designed to provide a space for an organic educational partner. Currently to keep the space maintained and utilized the “Adopt a Plot” program is in place. The program recruits volunteers who adopt a plot within the demonstration garden to maintain and grow crops. These crops are then used for cooking classes, but primarily

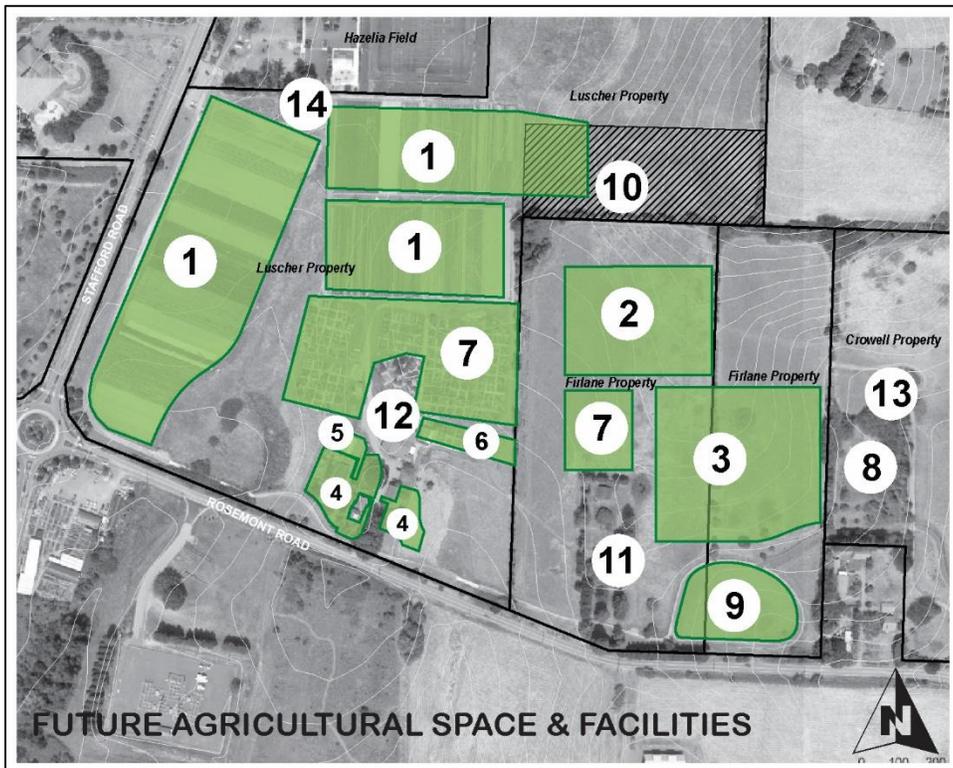
for donation to the City of Lake Oswego Meals on Wheels meal program. Volunteers also have access to a portion of the produce.

6. **Chicken Coup**

Currently the historic chicken coup is managed by a local restaurateur. The coup houses a variety of fowl such as chucker's, grouse, pigeons and chickens. The fowl are used for various activities not directly related to the public activities on the farm such as supplies for a local restaurant and sporting dog training. The coup plays a part in several recreational programs that introduce children to farm yard animals. The program provides an opportunity to feed the chickens produce from the Children's Garden. The coup also plays a part in the aesthetic of the farm and adds to the visitor experience. The direct interaction with the public is considered low level, although approximately 1200+ recreation program participants do visit the coup during tours and classes.

FUTURE AGRICULTURAL PROGRAM AREAS

This section focuses on the future agricultural program spaces throughout the site including some existing areas. This section does not address programs current or future but focuses on intent, appropriate uses, and any associated elements within the space. In some cases examples of program concepts are used to provide context. Program decisions are made for the identified spaces by City Parks and Recreation programming teams. Buffers and transition areas for each space will be identified in the Buffers and Areas of Transition section of the plan.



Future Agricultural Space Locations

Insert Area drawing to be made

1. Agriculture Program Space 1 (AG1)

AG1 is the largest agricultural programming space within the Luscher Area and has been programmed for over 10+ years. The space has a well established annual vegetable production and the soils have been amended from pasture. Additional crop options could include perennial production.

The Agricultural Program Space 1 will expand from 11.76 acres to 12.98 acres. Along the north (xx on map) the fields will be reduced by XX feet for development of the athletic field parking access road. To offset the space loss additional area is expanded into the Flex Space (XX on the map). Operations will be simplified for the programmer. Activities associated with the program such as storage, drying, washing and distribution will be moved from multiple locations and centralized in the Agricultural Facility (XX on the overview map). For more information regarding the agricultural facility see Facilities Section of the Ag. Plan on page XX

The current roads that around the edge of AG1 space will be upgraded to gravel and will be consistent with expanded maintenance/farm vehicle road system. The space does have existing water and electrical infrastructure connections to the edge of the program space.

For more program area information and suggestions refer to “Agriculture Recommendation Study 2014”. It provides a variety of information regarding program area infrastructure, crop information and program models.

2. Agriculture Program Space 2 (AG2)

Ag. Space 2 is approximately 2.5 acres in size and could be used for programming related to pasture, hay production, and livestock. This space also has recreational opportunities for trails. AG2 has significant topography. The topography could make it difficult to run equipment and may require special equipment for programming. This space is also within the internal view shed. Trails and picnic areas occur adjacent to the north edge of the area.

The access road to the south connects the area to the main interior road and links the area with the agriculture operational facility. Livestock and hay production facilities (such as hay storage, squeeze shoots, livestock fencing, shelter) are not designed as part of the Agriculture Operation Facility. Additional facilities within the program space will need to be constructed by the program.

(The Firlane property has several deed restrictions which will limit the programming potential. The deed restricts the use of the property to open space, recreational and instructional for the community as a whole. The property cannot be used for commercial purposes and construction of a school. These restrictions limit the programming potential. Some possible programming options could include non-profits, incubator programs (farmer development, crops would need to be available to general public and not commercially sold) and instructional/interpretive programming. Programs occurring within the Firlane property should be vetted through the City Attorney’s office.

For more program area information and suggestions refer to “Agriculture Recommendation Study 2014”. It provides a variety of information regarding program area infrastructure, crop information and program models.)

3. Agriculture Program Space 3 (AG3)

Ag. Space 3 is approximately 4 acres in size. This space is adjacent to the Urban Ag. Environmental Education Center and the Demonstration Garden. This program area has the potential to cross pollinate with the center and garden. AG3 has the potential for annual, perennial, pasturing and livestock production. AG3 has a moderate slope to the north. It does provide a flatter surface compared to area AG2. This make the site more suitable for a variety of programs.

The area has access roads running along the north and west sides. The water and electricity connection point will be provided along the western boundary.

(The Firlane property has several deed restrictions which will limit the programming potential. The deed restricts the use of the property to open space, recreational and instructional for the community as a whole The property cannot be used for commercial purposes and construction of a school. These restrictions limit the programming potential. Some possible programming options could include non-profits, incubator programs (farmer development, crops would need to be available to general public and not commercially sold) and instructional/interpretive programming. Programs occurring within the Firlane property should be vetted through the City Attorney's office.

For more program area information and suggestions refer to "Agriculture Recommendation Study 2014". It provides a variety of information regarding program area infrastructure, crop information and program models.)

Linked Agriculture Program Space 3 (AG2/AG3)

Because of the limitations of AG2 and the location of area AG3, these two areas can be linked. This linkage would provide a 6.5 acre program space (see "Linkage, Program Area AG2 and AG3" in the Infrastructure Section). Linking the program spaces could also provide opportunities for a multi-faceted agricultural operation with perennial, annual and livestock production. The area could provide an interesting example of small scale farming sometimes referred to as hobby farms. The opportunity to showcase smaller production of a variety of products using different agricultural techniques.

Definitions

Hobby Farm - a small farm operated for pleasure or supplemental income rather than for primary income OR is a smallholding or small farm that is maintained without expectation of being a primary source of income. Some are merely to provide some recreational land, and perhaps a few horses for the family's children. Others are managed as working farms for sideline income, or are even run at an ongoing loss as a lifestyle choice by people with the means to do so, functioning more like a country home than a business.

Livestock - are domesticated animals raised in an agricultural setting to produce commodities such as food, fiber and labor.

4. Botanical Garden and Collection Space

The botanical garden and collection space will continue in its current configuration. It consists of the greenhouse, which is the property of the Rogerson Clematis Collection, two propagation areas one next to the greenhouse and the other next to the bunkhouse. The botanical garden portion will remain a public garden space under the management of the program area.

5. Chicken Coup

The chicken coup area will be expanded to where the existing City greenhouse is currently located. This provides opportunity for expansion of poultry and small animal programs. The space is sufficient to construct varieties of small structures that would be used in backyards.

6. Children's Garden

The space will expand by four 20'x20' plots. The space will also continue to utilize the lean to. Opportunities to construct other infrastructure is available for the program in the surrounding space.

7. Community Garden

The community garden area will expand and be located in two areas within the site (see map for locations). Location A will consist of approximately 176 - 20'x20' plots and location B will consist of 56 - 20'x20' plots. Tool sheds can be constructed within garden plots for group use. Attention to location and interface with garden plots will need to be taken. The existing Tool shed supporting the community gardens next to the Luscher Barn will remain within the program area. Water will be added to the edge of location B. Location A will be

8. Crowell Garden Orchard and Recreation Area

The Crowell Garden was the garden space for the Crowell Family, it features some heirloom fruit trees. It is an interesting space providing a secluded hidden garden from an otherwise open and expansive pastureland. The space can be used for orchard production, recreational activities such as camps, and public park space (such as picnicking and passive activities). This area is considered mixed use, so agricultural programming will need to integrate with the recreational uses of the space. Recreation and passive use is a priority in this area. Agricultural production is considered secondary. It may be difficult for an agricultural program to operate due to community use and possible grazing by visitors.

9. Demonstration Garden Space

The demonstration garden will offer 2.5 acres of space for outdoor classrooms, experimental gardens, interpretive experiences, and community space. The demonstration garden provides an outdoor connection to classes and opportunities within the Urban Agriculture Environmental Education Center (Education Center) and Annex. The garden is an opportunity to have a variety of programs in one space offering the opportunities to experience different techniques, interpretive amenities, many plant varieties, different practices (example permaculture), pollinator gardens and more. The community will be able to learn about these topics in the garden space utilizing outdoor classrooms.

Water and electricity will be provided to the site as well as infrastructure and trail connections from the Education Center to the Demonstration Garden. The City greenhouse will be relocated to this site for use in garden programs. Pathways and outdoor classrooms (consisting of open areas throughout the garden) will connect the visitors with demonstration areas. The perimeter of the space can be divided into plots for different demonstrations. The demonstration plots will connect to the internal circulation network and outdoor classrooms. Several shelters will be constructed in the outdoor classrooms. Additional infrastructure will be the responsibility of programs within the garden.

FUTURE FACILITIES

10. Agricultural Operational Facility

To provide efficiency and facilities more conducive to modern agriculture processes, the Agricultural Operation Facility will be developed in a centralized location to agriculture program spaces. This is a shared use facility and is intended to support operations for AG1, AG2, and AG3 areas. The internal space (Ag. Building) will be approximately 12,000 square feet and external equipment storage approximately 2,400 square feet. The facility is intended to support up to three agricultural programs. All facilities will need to meet county, state and federal food processing regulations. The structure will have two levels and will be located within the topography in order to offer access to both levels from the ground. The facility will be divided into shared and program specific spaces. To offer larger more adaptable spaces the processing, community interaction and equipment storage spaces are shared use. The shared use spaces will need to be designed to offer programs the ability to overlap with processing and provide greater processing capacity for large harvests.

The internal structure will have the following spaces (all square footages are approximate):

- Processing (Wash station and prep area), approximately 580 sq. ft. this area is shared use (The area includes stainless surfaces, with adequate prep areas. The design needs to incorporate low maintenance, ergonomic, universal use design elements.
- Community interaction space, approximately 1,200 sq. ft., this area is shared use and used for product delivery, community connection. (The basic structure will include furnishings that offer a variety of configurations to best support agriculture programs. This could include tables, product refrigeration displays, counters, that can be used by all programs. If an amenity is specific to one program and not for use by all programs then that amenity would be the responsibility of the program using it.
- Cold Storage, Approximately 320 sq. ft. this area would be shared use.
- Drying space, approximately 6,400 sq. ft. This area would be divided up according to program size and specific to the program (Breakdown of space AG1 = 4,000 sq. ft., AG2 = 1,100 sq. ft., and AG3 = 1,400 sq. ft.)
- Office Space and break space, approximately 320 sq. ft. This area would be shared use for programming. (Program support staff would have access to break space of approximately 400 sq.ft.)
- Restroom Facilities, approximately 300 sq. ft. (this amenity should include showers, locker space, toilets and wash basins. Several small restrooms could be an option to save space and provide privacy versus a locker room layout, which would require more space for men and women.)

The space needs have been calculated by using existing agriculture space calculations (based on the contract with 47th Avenue Farms for Community Supported Agriculture program to develop a per acre square footage)

The structure's design aesthetic will reflect and complement the style of barns in the immediate area, such as the Luscher Barn and Shipley Cook Barn. This structure will be visible from Stafford and Road and the hillside neighborhood to the west. It is also in the scenic view shed from the top of the hill. In order to protect the view from within the site, the structure will need to take into account its scale and height. The design will need to be thoughtful and minimize the impact from the visitor's experience. The structure will also need to complement the cultural landscape

and external view shed minimizing visual impact of such a large facility. The facility design will require a qualified architect with knowledge of industrial and/or agricultural design for the operational aspect, as well as, a competent designer for the aesthetic.

11. Education Center & Annex Facility

This structure is approximately 5,200 sq. ft. and provides space for additional agriculture environmental education opportunities. The facility contains public restrooms, kitchen facilities (for the public and classes), and classrooms for recreational programs. It provides a space for classes related to the demonstration garden, nearby agricultural, environmental, and recreational programs. The design of the structure will mimic a barn and add to the cultural landscape of the area. The exterior design reflects and complement barns within the area such as the Luscher Barn or Shipley Cook Barn.

12. Luscher Farm Barn Event Facility

Luscher Farm barn is circa 1900 and was designed for farming and dairy practices commensurate with that era. The current configuration of the barn is considered inefficient for modern agricultural practices. According to historic barn workshops through Restore Oregon, often preservation of historic barns is better served by repurposing those structures. By repurposing the structures to serve the public as event facilities or other related amenities often provides the needed resources to stabilize and protect the structure. Careful attention to the design for repurposing must occur in order to retain the character and continue the historic presence of the space To connect with a larger cross section of the community and to provide additional recreational and event options, the Luscher Barn will be converted to an events facility. Once a new agricultural operation facility is developed the barn can begin the conversion process. Structural enhancements and interior improvements will be made to offer programming and occasional events space. Improvements will need to adhere to Lake Oswego, Clackamas County, and Oregon State historic preservation requirements. 22+ acres of the historic core has a Clackamas County Historic Designation.

Barn Options and recommendations:

- Commercial Kitchen,
- Historic interpretation area (museum space),
- Loft renovation open activity space,
- ADA renovations such as interior lift, passable entryways, hardsurface flooring,
- Historically sensitive structural stabilization,
- Electrical improvements,
- Plumbing, and
- Restroom Facilities (could be structural addition).

13. Maintenance Facility

To support the maintenance operations for the farm portion of the Luscher Area, a small maintenance yard will be constructed on the Crowell Property. This site has access to water, electricity and a small shed. Improvements will include the maintenance road for access to the Luscher Area and repurposing of the shed. Additional facilities will be constructed to provide the necessary resources for maintaining the site. If expansion is necessary for the maintenance group, additional space is available to the west of the shed. This location is also easily accessible to Rosemont Road and has minimal interface points with trails and visitor activity. The shed is

approximately 800 sq. ft. The site would need parking space for 3 vehicles, a tractor, mower and various other equipment. Approximately 2,500 sq. ft. of yard space would be constructed. Additional covered space for maintenance of vehicles will also be built within in the yard

14. Taylor Barn, Hazelia Field Maintenance

This structure is dedicated to Hazelia Field Maintenance and operations. It is a 1,500 sq. ft. building. Once the Agriculture Area 1 program is relocated to the Agriculture Operational Facility, the space will be reconfigured to meet maintenance requirements. Additional Yard space will be available to the west of the Taylor Barn and could include covered equipment storage. This yard will be fenced and secured for visitor safety.

INFRASTRUCTURE

General Considerations

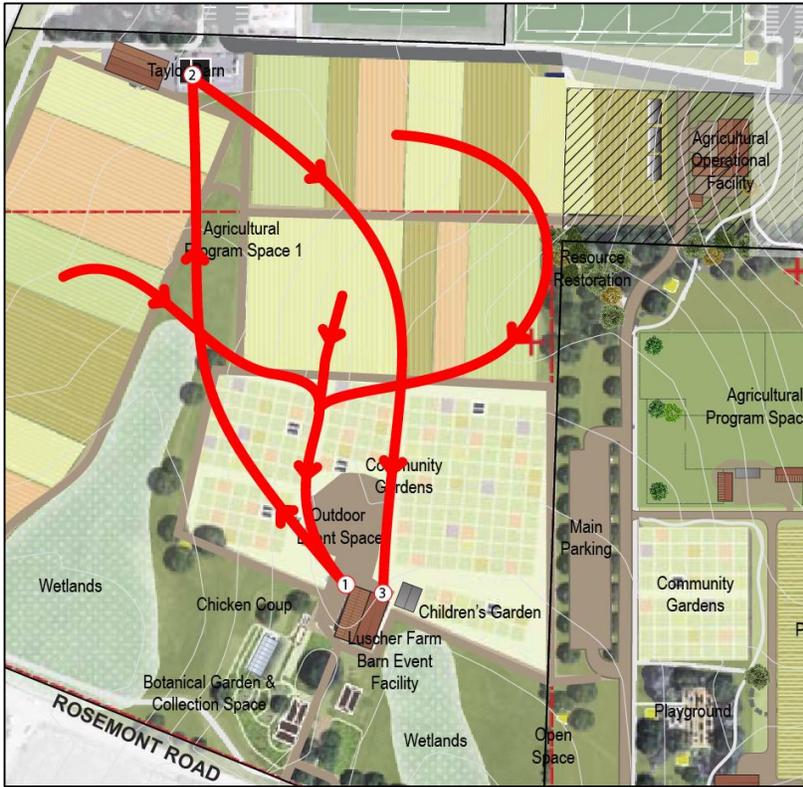
The City will develop all basic infrastructure for program areas. The Parks and Recreation Department provides basic facilities and materials for all related programs. Facilities and materials are space, water electricity, access roads, buffer fencing, and basic shared facilities similar to the agriculture operation facility.

Any additional infrastructure needed for the program will be the responsibility of the program such as greenhouses, hoop houses, internal roads, fencing, drip irrigation, etc. If a new program is an animal based production then paddocks, internal fences, squeeze shoots etc. will be the responsibility of the program.

Agriculture and Maintenance Roads

Agricultural programs will have basic infrastructure up to the edge of the space. Gravel roads designed for use as farm and maintenance vehicles will be developed at the edge of program spaces. One exception for Agriculture Program Space 1, this space will have roads (identified on the site plan and in the infrastructure section) within the program space due to current development and to use current infrastructure. The roads will be improved up to the standard throughout the rest of the site (gravel roads capable of handling maintenance and farm vehicles).

Several connections will be developed specifically for Maintenance and Agricultural vehicular use. The road system has been designed to limit complicated operational trips and access by park visitors. The system will attempt to provide a simple “harvest to process” trip with no additional trips.



Currently the programmer in Agricultural Area 1 has to make several trips to get from harvest to distribution a typical trip looks like this:(Note: the actual trips depend on type of crop etc, this is a simplified version to illustrate)

- 1.harvest to processing
- 2.processing to storage area
- 3.storage area to distribution



The “redesigned” trip will look more like this:

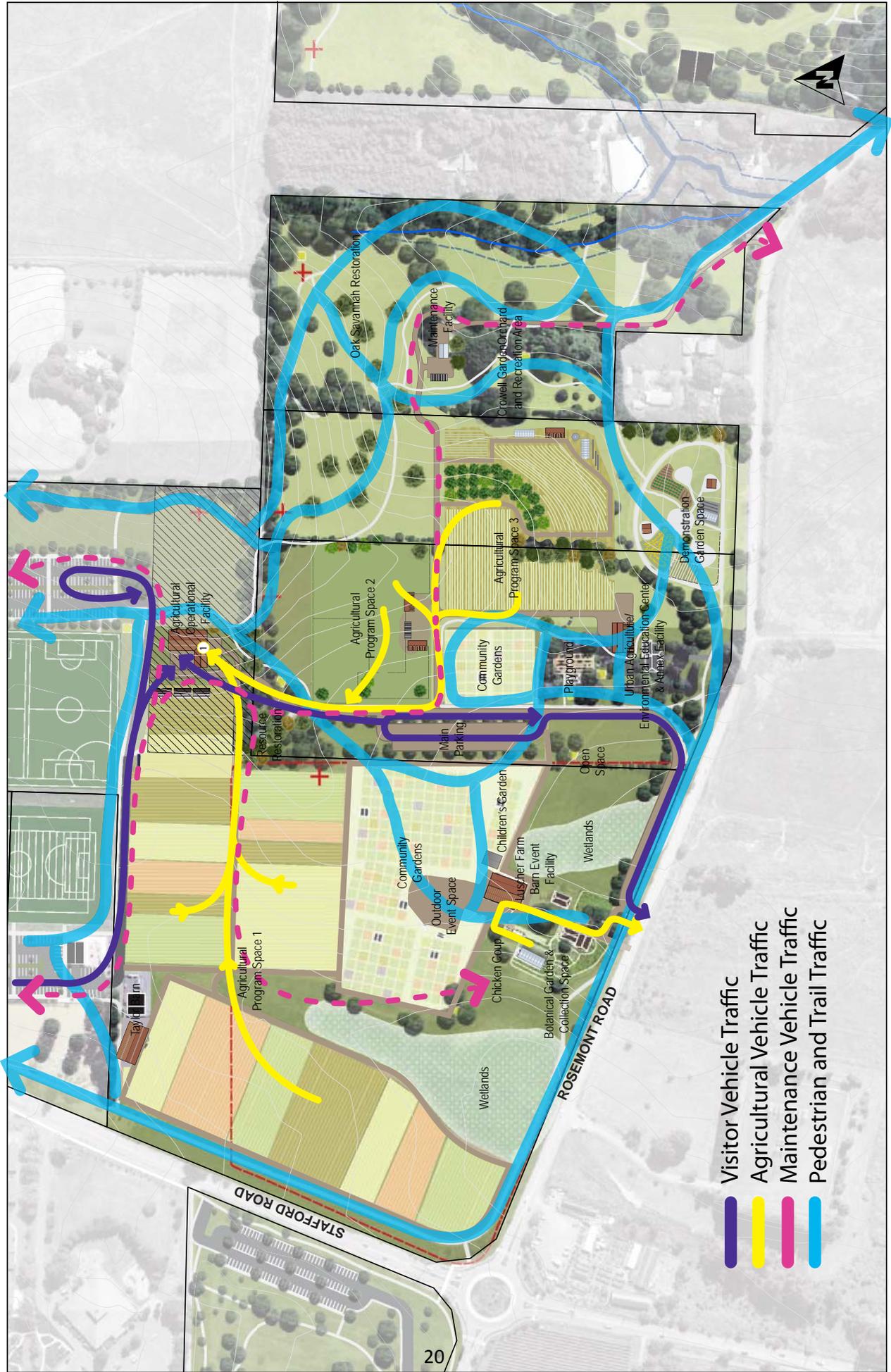
- 1.Harvest to processing, storage and distribution.

Site wide traffic flow has been designed to minimize the interaction between different users such as visitor pedestrian and vehicular traffic with agriculture and maintenance vehicles. (See the following plan for site traffic flow patterns)

Visitor traffic interactions has been limited for safety and efficiency. The system does have a few interaction points. These points will be treated with traffic measures such as crosswalks and fencing to minimize dangerous situations to both visitors and programmers. Examples are provided

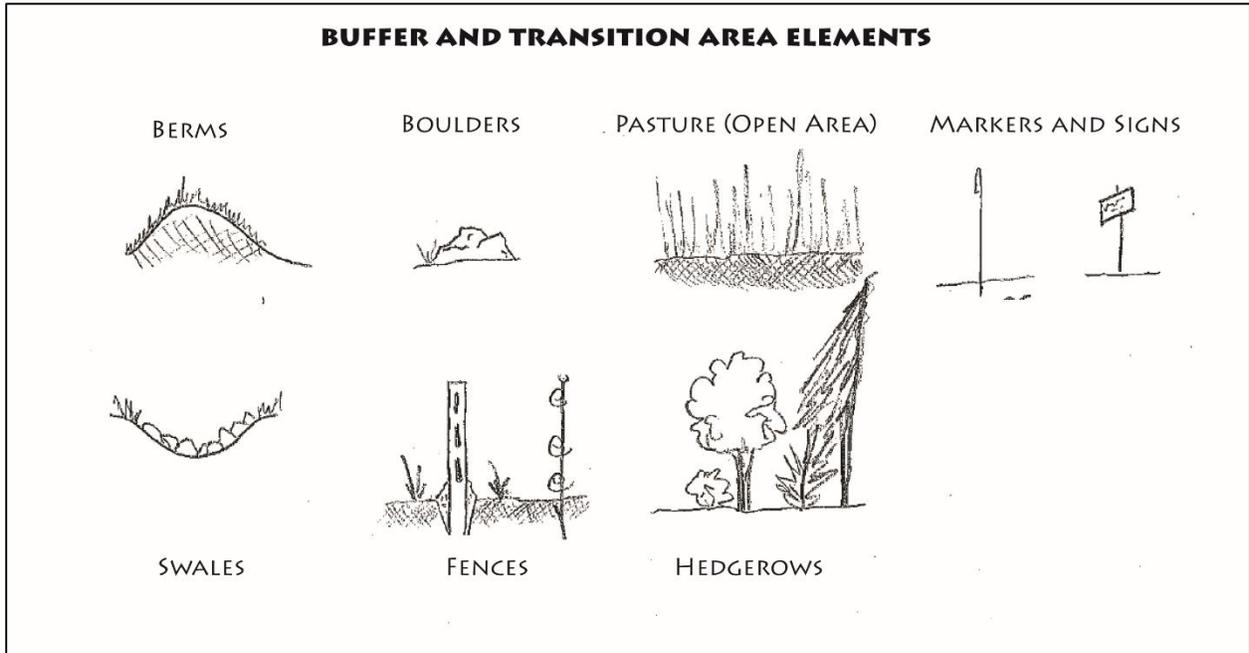
SITE TRAFFIC FLOW PATTERNS

SITE TRAFFIC FLOW PATTERNS



Buffers and Areas of Transition -

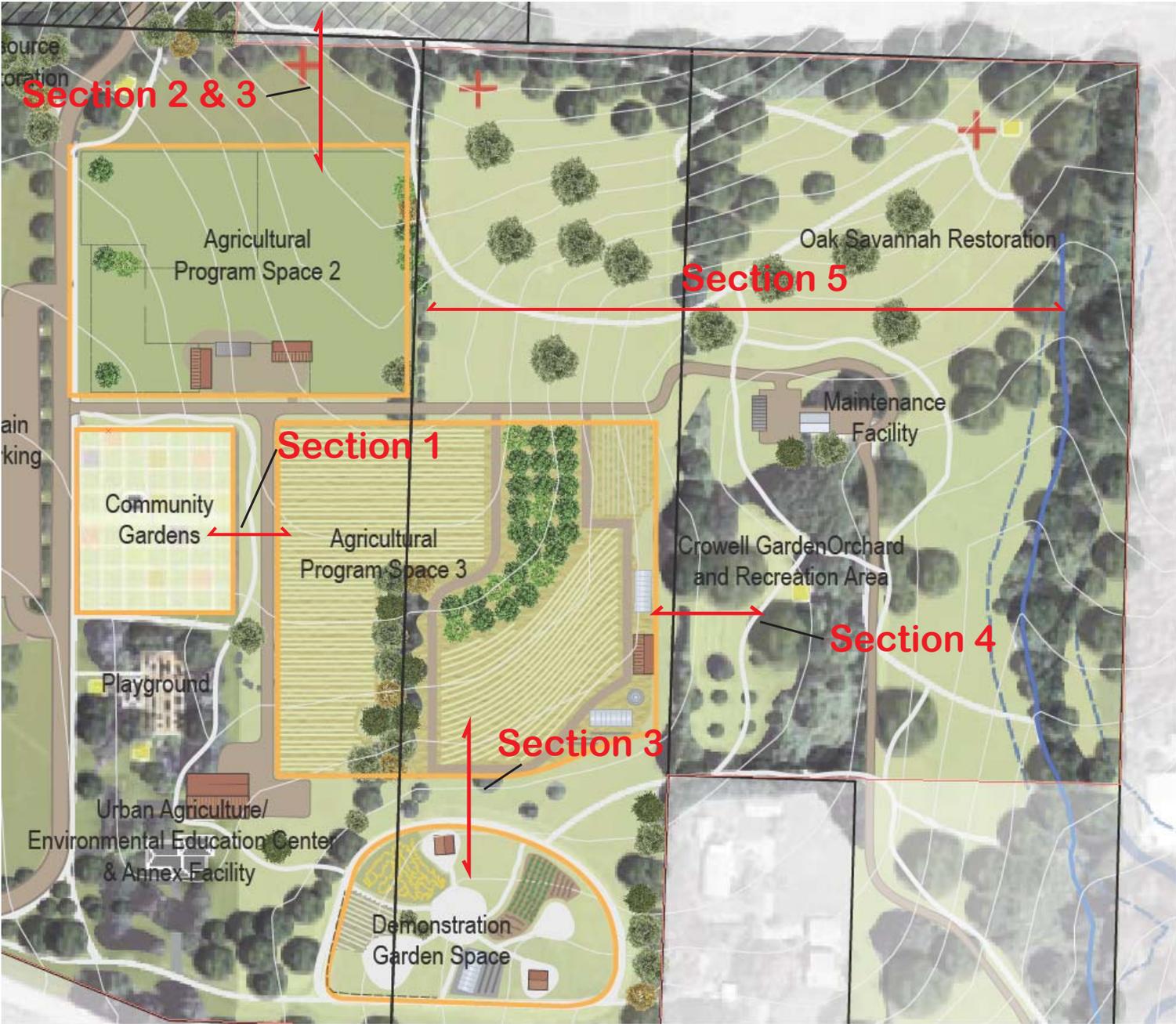
- Treatment options at interface areas – There are several ways to treat the transition area from agriculture to recreation and agriculture to natural spaces. A variety of tools are available from space to fences and swales to plantings. The following cross sections provide general guide to edge treatment. When constructing buffers and transition areas a variety of elements could be used in different combinations such as swales, fencing and plantings.



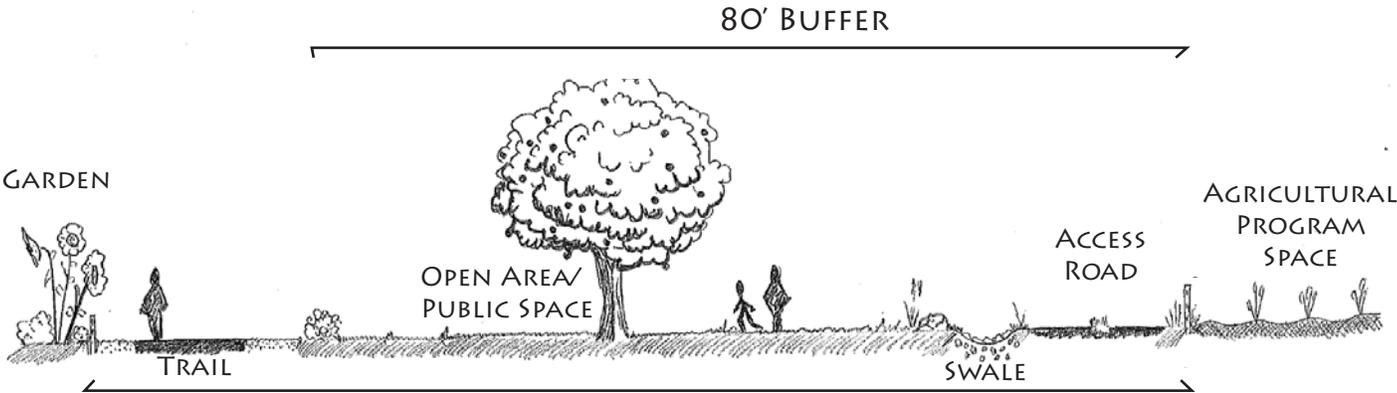
The next few pages illustrate cross sections for transition areas within a sample area. A combination of elements and example treatments can be used throughout the site and tailored to specific buffering needs.

See pages 22 thru 24

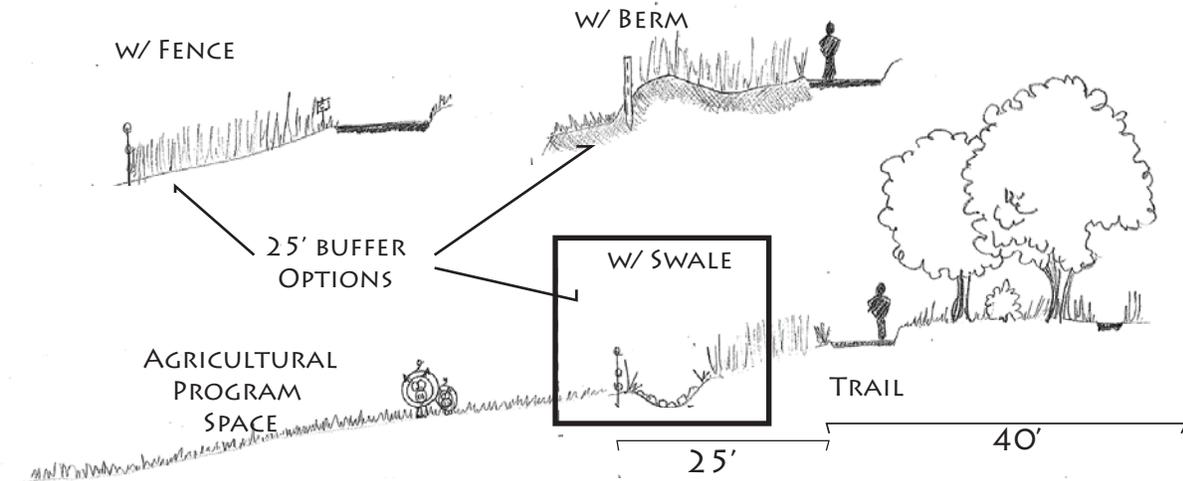
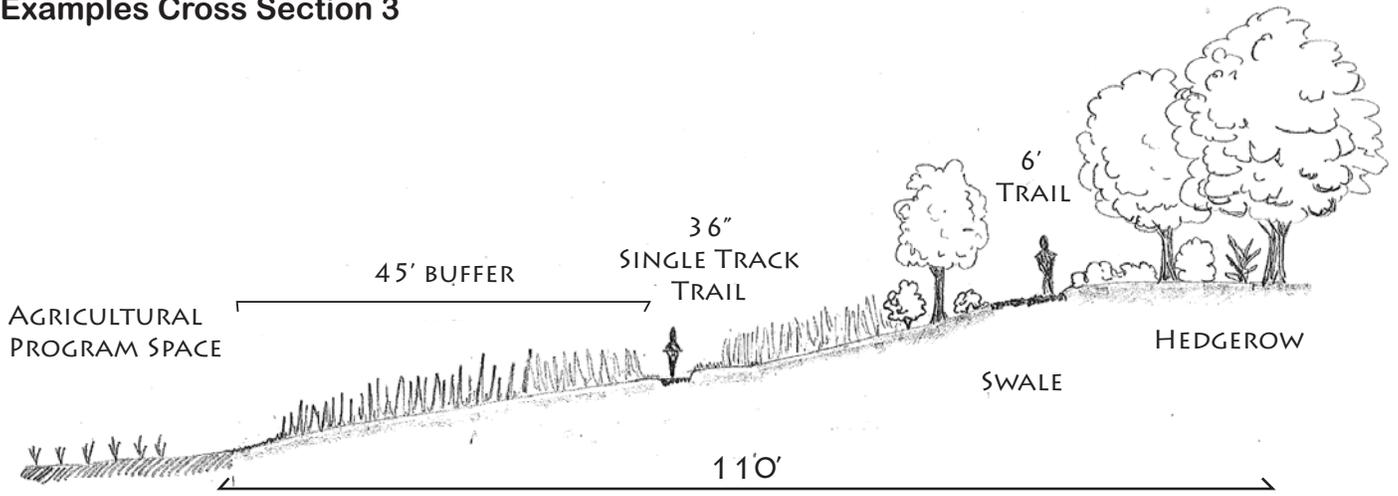
Firlane and Crowell Property Buffers and Transition Areas



Example Cross Section 1 and 3



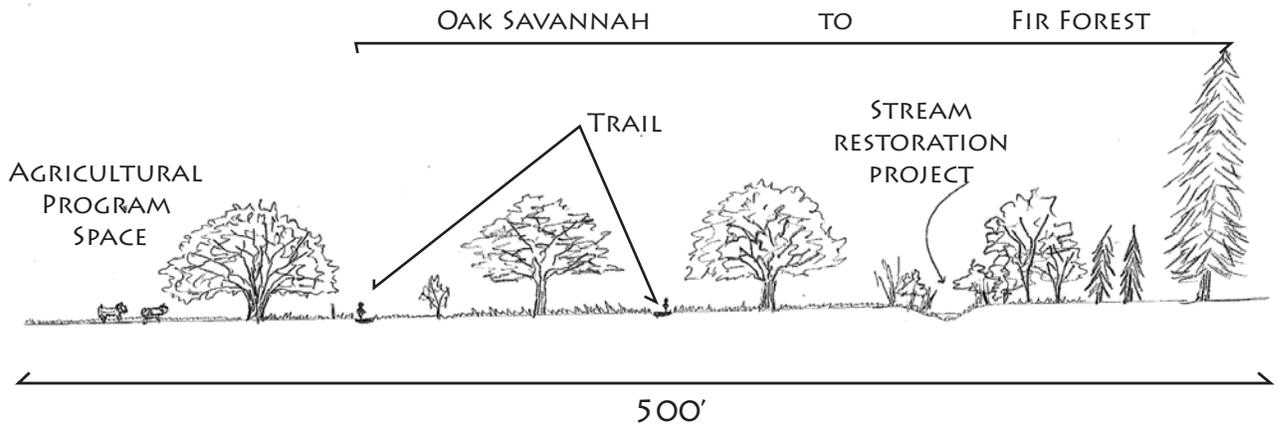
Examples Cross Section 3



Examples Cross Section 4



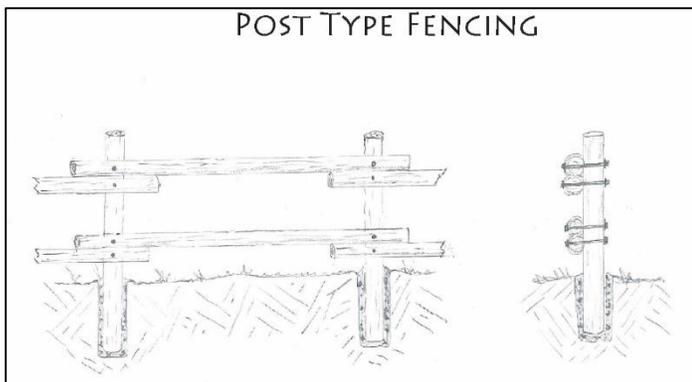
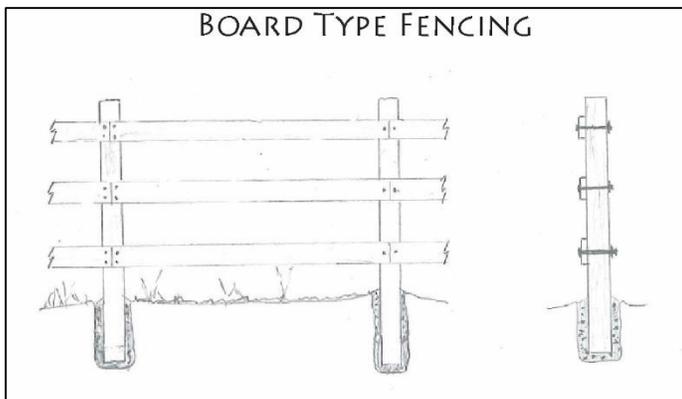
Examples Cross Section 5



Electricity - An electrical connection point will be provided to the edge of the program area with adequate amperage service for the program. Any additional electrical infrastructure is the responsibility of the program provider to construct and maintain. Electrical service will be constructed in the shared agriculture operation facility.

Fencing – Basic fencing will be constructed at the edge of the program area. This fencing is for decorative and buffering purposes. The locations of these fences are dependent on needs for buffering, safety, operational boundaries and finally aesthetics. Basic fencing may not be suitable for livestock programs. Programs will need to install the appropriate fencing to secure livestock and buffer from visitors.

Fencing types: Split rail fencing currently onsite is attractive although from a maintenance perspective expensive and delicate. Long term replacement of split rail fencing throughout the site will occur as areas are developed or as current fencing reaches the end of its useful life. Farm related fencing options will be low maintenance and within the aesthetics of a historic farm. The following styles suggested for fencing.



Both styles provide a durable long lasting fencing system. If sections fail replacement is simple using a bolt system and materials that are readily available in a variety of choices. In some cases the “basic” fencing could be modified by programs to suit specific needs. The modification will need to fit with the style and quality of the existing fence.

Trails and Pathways

Trail and pathways throughout the site have been realigned to provide uncluttered

Water

A water connection point will be provided to the edge of each program area. Water rights are the responsibility of the City as basic infrastructure. Included are any pump upgrades and mainline

construction necessary for delivering service to program areas. Any additional water related infrastructure within the program area is the responsibility of the program provider to construct and maintain. Water service will be constructed in the shared agriculture operation facility.

Current well records indicate that the well should be able to generate up to 200 gpm for an extended period.¹ In this region most crops need, on average, about 1" of water per week, with peaks of over to 2"² per week for good production. 1" of water is equivalent to a little over 27,000 gallons/acre. With continuous pumping a 200gpm well could hypothetically produce enough water for more than 70 acre inches per week. With diverse plantings and careful use of irrigation water the well should be more than sufficient, especially if there is a goal of demonstrating good water conservation practices in all agricultural projects.

PROGRAM DEVELOPMENT GUIDELINES

When determining agriculture programs the Parks and Recreation Department will follow the program development guidelines

- A. There are two methods in developing an Agricultural Plan;
 1. Identify the program, then define the space. This process, in theory, offers operations the best choice for developing or finding partners for agricultural programs. It does not inform and define the other uses within the site immediately. This method would typically be beneficial for a business operation on a private farm or a site that is primarily for agricultural production.
 2. Define the space, then identify the program. This process in theory, reduces the opportunity to develop or find partners for agricultural programs but does allow for defining spaces that are not agriculture related. Since the area is a public space and is considered a park this method is preferred.
- B. When developing programs, a thoughtful approach to current partners and nearby private operators will be taken. This includes providing programs that do not directly compete with existing models and partners but compliment the variety of programs and options at the park.
- C. Program Models - New programs will be examples of different models of agriculture and agricultural products. The Luscher Area is an opportunity to try new systems and be an outlet or a place to connect the region to these models.
- D. The Luscher Area is a unique opportunity for people to connect with a wide variety agricultural experiences, future programs will take advantage of this opportunity and while agriculture production is important, equally important is the opportunity to inform, educate and inspire. The park is a space to inform the public about food systems, food security, production options, value of nutritious fresh foods, and examples of sustainable agricultural practices.
- E. Public interaction level – to better understand how a space fits in the broad picture of the overall Luscher area we have to see how the community connects with the space on both a direct level (participation in identified space) and indirect (how the space provides for the experience of the farm park). For instance a public event, such as a concert in the park, would have a high level of direct public interaction since it is typically free and is held within the majority of a park such as Foothills Park. This same event would have a high level of indirect interaction with the neighbors and park visitors using the site for different reasons. Whereas, a yoga in the park class with a limited

¹ Oregon Water Resources Department pump test from 11/28/2001

² The Western Oregon Irrigation Guide, published 5/5/2000 by Oregon State University has a good range of irrigation recommendations for crops grown in the Willamette Valley

number of participants, would have a low level of public interaction since an individual would need to sign up and pay for the class in order to interact. The yoga class would also possibly have a moderate level of indirect interaction with the public, for instance the yoga class may be full but yet the activity adds (whether good or bad) to the experience of the space.

- F. Sense of place/experience versus functionality/operations – the layout of the Ag. Plan has been drafted to create a balance between function and experience. The Luscher Area is a unique opportunity to provide examples of agricultural models, spaces for the public to recreate, a connection to nature and restoration of natural systems. These spaces have been defined and designed to provide the highest level of functionality for agricultural programs while offering needed public space for recreation while providing opportunities to experience the agricultural landscape on a more personal level. The Ag. Plan will clearly define the agricultural program space and how it interacts with public space (buffers) and natural areas without detracting from both function and experience.
- G. Programming at the Urban Ag/ Environmental Education Center will expand knowledge of agricultural practices and environmental topics that apply directly to the site. Additionally, the facility provides a venue for community engagement through unique site based, hands-on learning experiences that are not available in traditional classrooms. The Center will be a leading urban agricultural and environmental advocate for the entire Luscher Area. (Guideline #6 is from the LAMP)
- H. New programs will need to adhere to deed restrictions on the property. For instance the Firlane farm has verbiage that restricts the site to instructional activities and restricts any commercial use. The site has also been restricted from constructing a school. Parks and Recreation programs are under the instructional category and align with the requirements of the deed.

IMPLEMENTATION

The properties associated with the Ag. Plan are zoned EFU with Clackamas County. Many uses are allowed such as farming, accessory buildings (Ag. Operational Facility, Farm Stands, etc.). The ease of approval for additional agriculture related structures will depend on whether the property is considered Low or High Value (predominantly class III or IV soils (see ZDO401 in the appendix). Currently only the agricultural based uses proposed in the Ag. Plan would be implementable. Other uses could be allowed if approved by the county under a conditional use permit process. Since a master plan has been developed it is recommended that for further implementation of the community vision, the City obtain a conditional use permit for all park uses outlined in the LAMP. The master plan use recommendations are consistent with ZDO-401.04-H “Parks, Public, and Quasi-public Uses” items 2, 3, and 4. By obtaining a conditional use permit for park use will simplify implementation of the LAMP. Doing this will ensure the City provides continuity and expansion of programming, and continued enhancement of the Luscher Area parkland for the enjoyment of the community. The LAMP would need to be reviewed and if necessary adjusted to meet the requirements of the county conditional use process (ORS 195.120).

The Ag. Plan has defined many different elements such as; program spaces, infrastructure and amenities. The following simplified implementation matrix identifies the progression necessary to proceed with each element. The matrix is divided into steps. In most cases most elements will be contingent upon the completion of a prior step. Step two cannot occur before step one

IMPLEMENTATION MATRIX							
ELEMENT	TIMELINE						
	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Conditional Use Permit (Clackamas County)	<input type="checkbox"/>						
Site Entry Area Reconfiguration		<input type="checkbox"/>					
Main Parking Area Construction		<input type="checkbox"/>					
Trail Integration			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Secure Rights to all property (sunset of use agreements on Crowell property)		<input type="checkbox"/>					
Electrical Infrastructure Expansion (Firlane)				<input type="checkbox"/>			
Water Right Expansion & Infrastructure (Firlane)				<input type="checkbox"/>			
Agriculture and Maintenance Road Network Construction			<input type="checkbox"/>				
Park Maintenance Facility Construction				<input type="checkbox"/>			
Construction of Agricultural processing center #1				<input type="checkbox"/>			
Construction of Agricultural Processing Center #2 and Educational Connection					<input type="checkbox"/>		
AG1 Program Identified			<input type="checkbox"/>				
AG1 infrastructure				<input type="checkbox"/>			
Agricultural Area AG1 expansion					<input type="checkbox"/>		
Chicken Coup Rehabilitation					<input type="checkbox"/>		
Community Garden Expansion Main Area					<input type="checkbox"/>		
Community Garden Expansion Secondary Area (Firlane)						<input type="checkbox"/>	
New Demonstration Garden					<input type="checkbox"/>		
AG2 and AG2a Program Identified				<input type="checkbox"/>			
AG2 and AG2a Infrastructure					<input type="checkbox"/>		
AG2 and AG2a expansion						<input type="checkbox"/>	
AG3 Program Identified				<input type="checkbox"/>			
AG3 infrastructure					<input type="checkbox"/>		
AG3 expansion						<input type="checkbox"/>	
MU1 Program Identified				<input type="checkbox"/>			
MU1 Area Expansion					<input type="checkbox"/>		
Historic Barn Conversion and Events Space						<input type="checkbox"/>	
Athletic Field access road expansion						<input type="checkbox"/>	
Athletic Field Construction						<input type="checkbox"/>	
Athletic Field Maintenance consolidation in Red Barn							<input type="checkbox"/>
Buffer Construction		<input type="checkbox"/>					

APPENDIX A



Agricultural Recommendations for Luscher Farm

January 15, 2015
Written by Josh Volk, Slow Hand Farm
with Nita Wilton and Karen Tillou

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Introduction

This report is intended to be a supplement to the City of Lake Oswego's Luscher Area Master Plan (LAMP). It contains expanded recommendations for agricultural activity at Luscher Farm, including: production options for specific areas of the farm with rationales, management options for those areas, and references to similar programs around the US. This is not intended to be a comprehensive detailing of budgets and expenses, daily work activities, or crop requirements, but it should provide enough information for the City to make good decisions on how to move the agricultural operations on the farm forward, and provide some resources for further research.

We have looked carefully at the Luscher Area Master Plan (LAMP), met with the major stakeholders on the property, and extensively walked all of the areas of the farm on multiple occasions to better understand the current conditions on the ground. The LAMP addresses a number of agricultural projects but was put together by a team that did not include any agricultural practitioners. This document should be a good supplement to the LAMP and is put together by a team of agricultural practitioners with extensive experience in diverse agricultural projects on a range of scales that line up well with potential projects at Luscher Farm. The contents of this document follow up on the recommendation to "Develop a long range urban agriculture strategy, design and implementation plan"¹ set forth in the LAMP.

¹ Lusher Area Master Plan, July 25, 2013, p.97

Overview of the Document

This report covers a lot of ground, starting with a summary of planning work to date, moving through other basic background information and a survey of other models around the country, into lists of options for specific locations around the farm. A short summary of each section is given here in order to help the reader understand this document better.

The first section is a summary of the LAMP in relation to agriculture. This pulls important information from different sections of the LAMP that are relevant to this document and puts them together in one place for easy reference.

Following the summary of the LAMP are notes on a listening session with stakeholders that we conducted as a part of the process of bringing this document together. That is connected to sections giving some background on agriculture in the area and an annotated list of projects around the country that have elements which could be used as models for parts of the Lusher agricultural plan.

Before giving specific options we give sections on specific considerations for annuals production, perennial fruit production and livestock husbandry. These are intended to provide the reader with context for the options that we lay out in the final sections, and to let the reader better understand the considerations in mixing options.

Moving through each section of the fields identified in the LAMP we give multiple options, explaining the pros and cons for each. These options are based on our personal and extensive experiences with production of annuals, perennials and livestock in the Willamette Valley both for profit and in educational contexts.

Following the options for specific spaces there are sections on options for management strategies of the agricultural spaces and marketing strategies. These attempt to give context on the people needed to run different types of operations and the relationships that need to be developed in order to sell produce to fund the agricultural operations on the farm.

At the end of the document we have included several appendices that give lists of appropriate crops and animals for this area. We have also included information from Joseph Postman at the National Clonal Germplasm Repository, Corvallis, Oregon, on how to make inexpensive and durable plant tags, something that may be appropriate for other signage around the farm as well.

Summary of the LAMP in Relation to Agriculture

Basic summary

The LAMP “provides long-term direction for the stewardship and development of all public properties in the Luscher Area, with an emphasis on *retaining the rural character* of the area, protecting natural *and cultural resources*, and providing recreational opportunities for the citizens of Lake Oswego.”² A primary characteristic of the rural areas around cities has historically been food production to feed the urban populations. Food is integral to the culture of a place and these connections are shown in the strong public support for agriculture at Luscher Farm.

According to the LAMP, in public outreach feedback “77% of respondents were somewhat or very supportive of providing urban agriculture at Luscher Farm. Additionally, at least 70% of respondents viewed each of the four specific goals for urban agriculture at Luscher as somewhat or very important.”³ Additionally, land use planning in the area has designated all of the property we are addressing with EFU zoning, exclusive farm use. While this zoning may change in the future, it shows the current intention for this space and is reflective of its historical use.

Technical Details

There are a number of technical citations in the LAMP that inform any agricultural planning. For example the map on p.13 shows properties that are zoned EFU and EFU restrictions are outlined in a chart on p.29. There is a soils map on p.16, a wetlands map on p.19 and a viewpoints map on p.20.

In this document we will address the areas identified opportunities for agriculture in the LAMP on p.53 and focus on areas C and H on the map on p.63 and the possibility of using area B13 to create a bridge between active recreation and agriculture programs. We are not looking at areas I, J or K (Brock, Rassekh, and Stevens Meadow properties) as these are not identified for agriculture in the LAMP and are also not connected to the current agricultural areas. Map 1 in this document (on p.30) also shows the areas we are addressing.

Water

Water is extremely important to any agricultural recommendations. Land characteristics need to be looked at in the context of the availability of water for both irrigation and product handling. The LAMP states that “The Luscher Farm well has sufficient capacity for ... new uses and the City assumes that water from the Luscher site can be used on Firlane Farm through a water rights application

² *ibid*, p.1 (italics added for emphasis)

³ *ibid*, p.44

process.”⁴ “It takes a minimum of five years to obtain a water right”⁵ which means that planning for new agricultural projects will have to take into consideration this timeline.

An initial survey of the current well records indicates that the well should be able to generate up to 200 gpm for an extended period.⁶ In this region most crops need, on average, about 1” of water per week, with peaks of over to 2”⁷ per week for good production. 1” of water is equivalent to a little over 27,000 gallons/acre. With continuous pumping a 200gpm well could hypothetically produce enough water for more than 70 acre inches per week. With diverse plantings and careful use of irrigation water the well should be more than sufficient, especially if there is a goal of demonstrating good water conservation practices in all agricultural projects.

Potential Concerns

The Firlane property deed states that the property “shall not in any event be used for any commercial purposes or construction of a school.”⁸ This needs to be clarified as it may mean that programs such as the existing CSA that are agricultural, but also commercial in the sale of produce, may not be allowed on the property. This is also the proposed site for a education center so it should be clarified that this does not fall under the definition of a school.

⁴ *ibid*, p.3

⁵ *ibid*, p.95

⁶ Oregon Water Resources Department pump test from 11/28/2001

⁷ The Western Oregon Irrigation Guide, published 5/5/2000 by Oregon State University has a good range of irrigation recommendations for crops grown in the Willamette Valley

⁸ Luscher Area Master Plan, July 25, 2013, p.9

Notes from Listening Session

July 8 meeting with stakeholders

In our meeting with representatives from all of the parks departments that interact with Luscher Farm, representatives of Friends of Luscher Farm, and Laura Masterson from The 47th Ave Farm several themes stood out which echoed findings from the LAMP.

- Agricultural projects should benefit the larger community.
- Agricultural projects should seek to partner with public and private organizations in the area and should not compete with them directly.
- Agricultural projects need to coexist with public access and recreational programs within the park.
- Agricultural projects on the property will be stronger if they provide a good backdrop for other programs and can have overlap with other uses such as:
 - Recreational activities
 - Educational programs with both kids and adults
- Concerns to address in any plan include:
 - Traffic and general flow on to and within the property
 - Additional maintenance requirements

Additionally, it would be beneficial if agricultural projects did not require extra resources from existing programs. This would primarily mean added work for Parks Maintenance. Ideally new agricultural projects could help reduce the maintenance required by Parks Maintenance by managing areas that are currently managed by the maintenance crew.

Defining Agriculture

Agriculture is defined by the New Oxford American Dictionary as:

The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products.

In this definition all types of production and products coming from cultivation of the soil are included and there is no exclusive reference to a commercial aspect.⁹ For the purposes of this report we will broadly use this definition and address both commercial and non-commercial possibilities. The report authors practice both commercial and non-commercial agriculture so recommendations will be based on both personal experiences as well as examples from diverse projects from the region and around the country.

As the land is public land, and multiple stakeholders have identified a desire for educational uses and uses that allow the public to interact with agricultural activities, we will try to highlight agricultural uses and approaches that lend themselves to these goals.

Regional Agricultural Context

Luscher Farm is located in the upper Willamette Valley, in an area of rolling hills and close proximity to urban centers. Historically, from the late 19th to the mid-20th century, the property was a cattle ranch, and then a dairy farm. This was during a time when the population density in the immediate area was far lower and long distance transportation costs were much higher. In the earliest days of the farming on this site, refrigerated transportation was not possible, meaning food production for perishable products like milk needed to be closer to urban centers. Cattle, while still transported off-farm for slaughter, were typically raised closer to regional slaughter houses than they are today, and the butchered meat was not distributed as widely.

Farms from the late 19th and early 20th century, while having primary products for export (within the region) like cattle, were also diversified to feed the farmers' family. They likely had extensive vegetable gardens, fruit orchards, berry patches, and a variety of homestead animals such as laying hens, ducks, and pigs.

⁹ Farming is defined by the same dictionary as, "the activity or business of growing crops and raising livestock," which leaves open the possibility of commercial and non-commercial production.

Later in the 20th century, as transportation became easier over longer distances, more products would have become available for purchase and less expensive. This, combined with pushes by agricultural experts at the USDA, universities and banks, reduced the diversity on farms and encouraged consolidation. Farms got bigger, more mechanized, and the small kitchen gardens and orchards disappeared as farm families started buying their groceries. Refrigerated trucking and growing herds enabled dairy farms to move farther from the urban centers, and larger plantings of crops like berries, beans and grass seed started to take over the larger fields in the flatter, more open parts of the valley.

In the last few decades, much of the farmland in this area has been developed for housing and commercial uses as the population has grown. On more topographically isolated farmland, such as Luscher Farm, cattle and haying have remained options on a relatively small scale for farmers with other sources of income or access to enough parcels of land, or hobby farms for recreational horse owners have taken the place of raising food. In nearby areas a wine and vineyard industry has grown up, taking advantage of unique soils typically considered too poor for other crops.

Specialty vegetables have begun to make a come back, as have diverse animal operations, as the local urban populations have gained an increased appreciation for the quality of what would previously have been food produced primarily for the homestead and local markets, not long distance shipping. The Portland area, like most urban areas, has a tradition of market gardens, one that nearly disappeared when long distance transportation and consolidation of production was taking over in the 70's and 80's. As the urban edge moved farther from Portland's center, so have the market gardens, and Luscher farm is now a part of that edge.

Other Models to Look To

Nationally there are many examples of agriculture on public park land, as well as good examples of privately owned agricultural land that is managed by non-profits for public access and education. The examples are diverse and are colored by the historical uses and the regional needs. This list is just a sampling of the programs out there, but highlights successful programs that may provide good models and ideas for programs and approaches at Luscher Farm.

**programs with a star are ones that we feel have the most overlap with opportunities at Luscher farm*

***Zenger Farm**

Zenger Farm is located in SE Portland. The land is owned by the City of Portland's Bureau of Environmental Services but the non-profit has a 50 year lease which allows them to farm and run educational programs on the land which helps the BES promote its conservation and environmental stewardship goals. Zenger Farm as an organization continues to grow. With its roots in a CSA program that offered educational tours for local school kids, Zenger has greatly expanded its programs

over the years to include even more programs for kids, formal training programs for beginning farmers, workshops for adults, relationships with community gardens and local farmers markets, and programs that promote healthy eating.

www.zengerfarm.org

****Sauvie Island Center***

The Sauvie Island Center was started in 2005 to expand and improve school visits to Sauvie Island Organics. Previously the farm, a for profit business selling produce directly to consumers and local restaurants, had been volunteering time giving occasional school tours but the requests for tours were coming more frequently and so a non-profit was started to improve the tours and to take pressure off of the already busy farmers. The Sauvie Island Center trains volunteers to lead school tours, using Sauvie Island Organics, a working organic farm, as a backdrop and educational tool without causing significant impact on the commercial operations.

www.sauvieislandcenter.org

Food Works

Food Works is a program of the larger Janus Youth Programs. It is a youth empowerment program that uses a small farm as the platform for giving hands on experience in growing, preparing, and selling food. The farm land itself is leased from Metro. With less than three acres in production they are able to support a program for more than 40 youth. The Food Works program also integrates with other community programs under the umbrella of Village Gardens, which includes community gardens and a new retail store. www.villagegardens.org

Portland Fruit Tree Project

The Portland Fruit Tree Project started off primarily as a gleaning organization with the idea of harvesting neglected fruit trees. Over the years their programs have expanded to include trainings on Tree Stewardship and work with planting, maintaining and harvesting Community Orchards. www.portlandfruit.org

Metro Open Spaces

Metro owns and leases 580 acres of farm land in the Portland area. These leases are parts of properties where Metro is protecting wildlife, doing restoration projects or has park space. The agricultural leases allow them to offset the costs of maintaining the land. Average lease cost is just over \$100 per acre per year and varies depending on the location and quality of the land. www.oregonmetro.gov/news/fictional-hippie-farm-on-portlandia-is-actually-a-metro-natural-area-and-an-example-of-farm-leases

Oregon Parks and Recreation Department: Orchard Stewardship

Faced with aging, pioneer-era orchards in some of their state parks, Oregon has worked with local fruit tree experts to locate, identify, and protect these heirloom trees for the benefit of the public. They are an excellent resource and model for managing historic trees.

www.oregon.gov/oprd/NATRES/pages/orchard_locations.aspx

Bald Hill

The Greenbelt Land Trust owns Bald Hill Farm in Corvallis, Oregon. They had leased the property in a short term lease to be grazed by Afton Farm while leaving the property mostly open for hiking and public tours. At this point it is unclear what the status of production is at Bald Hill Farm.

<http://greenbeltlandtrust.org/conserving-land/bald-hill-farm/>

****Hidden Villa***

Another educational farm in the San Jose, California, area with a long history. Hidden Villa was started by the Duveneck family but is now owned and run by a non-profit. The farm and wilderness acts as a backdrop for many youth and adult programs. Vegetables are produced on about 9 acres, there is a livestock program, both generating income for the organization. Education programs include new farmer training, but are primarily focused on school tours during the school year and a summer camp that has been running since the 1940's. www.hiddenvilla.org

Slide Ranch

Just north of San Francisco in the Golden Gate National Park is Slide Ranch, a small farm run by a non-profit educational organization. Slide Ranch has been operating since 1970 and uses a small garden and animal pastures as the backdrop for community education programs for school kids and families. www.slideranch.org

****Fairview Gardens***

This small farm in Goleta, California, is a great example of a farm that has continued to exist even when the agricultural area around it has become entirely residential. The farm was put into an agricultural land trust in the 1980's to keep it from being developed. Besides significant production on the farm and a farm stand which serves the local community, the farm also has numerous community programs, kids education programs, and guided and self guided tours. www.fairviewgardens.org

Deer Hollow Farm at Rancho San Antonio

Rancho San Antonio is a county park near San Jose, California. The City of Mountain View has managed the historic Deer Hollow Farm since the late 1970's as an educational resource for area schools. The farm produces livestock (sold live which avoids many issues around slaughter), eggs, and a small amount of produce. The City staffs the farm and many volunteers, coordinated by the Recreation Department, help with daily maintenance and with educational programs. Since 1994 there has been a non-profit Friends of Deer Hollow Farm organization that has helped with funding and programs. The farm is in the middle of a much larger park and is open to the public although most spaces are closed to entry by the public in order to protect the livestock. Staffing is paid for by the city and the school district and funds are generated for farm expenses by charging for educational programs, and through sales of farm products. This is a good model of a community supported effort and working with school districts to continue a program but it may not be the best example of animal husbandry or horticulture. www.openspace.org, www.deerhollowfriends.org

Copely Community Orchard

An example of an urban community orchard project in Vancouver B.C. Labor for the orchards are provided by members at work parties and fruit is distributed between working members. copleycommunityorchard.com

Broadturn Farm

The Scarborough Land Trust owns this 434 Acre farm in Scarborough, Maine. Broadturn Farm operates a vegetable CSA and floral business on the land and resides at the farm. The lease is for 30 years. broadturnfarm.com, scarboroughlandtrust.org/lands.html

Intervale

The Intervale is located in Burlington, Vermont, and started its Farms program in 1990. This farm incubator is probably the best known in the country and provides land, equipment and mentoring support to new farmers as well as consulting for organizations wanting to start incubator farms. www.intervale.org

Shelburne Farm

Located in Shelburne, Vermont, this non-profit uses its extensive farm and historic structures as a backdrop for educational programs for adults and youth. The concentration is on sustainability and education programs that teach the community about farming, but there are not programs for training new farmers. The farm incorporates dairy, livestock and vegetable production and there is also an onsite restaurant. www.shelburnefarms.org

Malabar Farm

Malabar farm is a state park in western Ohio. The park maintains a working farm and has extensive trails as well as lodging and camping options. It offers tours of the historical farm site and buildings. www.malabarfarm.org

****City of Calgary Community Orchards***

Begun in 2009, Calgary has implemented several test sites within four of their existing city parks for developing and testing successful models for community orchards, both city- and community-run. They are an incredible example for Lake Oswego/Luscher Farm, and their website has terrific explanations of and resources for what they are doing.

www.calgary.ca/CSPS/Parks/Pages/Programs/Community-orchards.aspx

The Bloomington Community Orchard

A community orchard located in Bloomington, Indiana, on city park land. This is a great example of a citizen-led urban agricultural project on public lands. The volunteers work closely with their city's Parks and Recreation departments, as well as with private non-profits who specialize in fruit tree care and education. Their website details some of the educational and agricultural opportunities that orchards create in the community. bloomingtoncommunityorchard.org/site/

Ben Nobleman Park Community Orchard

Another community orchard established in public parks, this one in Toronto, Ontario. Again, the volunteers who spearheaded this orchard work closely with their city’s Parks and Recreation department, as well as with private non-profits. communityorchard.ca

Old Salem Museums and Gardens

This is an organization that maintains historic buildings and gardens in North Carolina. Many of the gardens are open to the public and feature demonstrations of historical food production techniques and varieties. The gardeners have started to use QR codes with bed tags to direct visitors to more information on their website. The gardens are just part of larger tours and feed produce and supplies (like broom corn) into more of the workshops and activities that are provided through ticket sales and school visits. www.oldsalem.org/gardens.html

The following is a matrix summarizing important elements from some of the models listed above:

Models	Annuals	Fruit	Animals	Education	Recreation	Community partnerships	Historical significance
Zenger Farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Sauvie Island Center	<input type="checkbox"/>			<input type="checkbox"/>			
Food Works	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Portland Fruit Tree Project		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Metro Open Spaces							
Deer Hollow Farm	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hidden Villa	<input type="checkbox"/>	<input type="checkbox"/>					
Slide Ranch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Fairview Gardens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Intervale	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	
Shelburne Farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
Malabar Farm			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Calgary Community Orchard		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Ben Nobleman Park		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Oregon Parks and Rec		<input type="checkbox"/>			<input type="checkbox"/>		
Old Salem Museum and Gardens	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>

Summary of Production Considerations by Type

In this project we have broken agricultural production into three basic types: annuals, perennials and animals. These are loosely defined and there is some overlap between all three. Annuals primarily deal with crops like vegetables which see regular tillage, replanting and harvests. Perennials is mostly used to designate fruits and nuts which are planted and then remain in the ground for several to many years. These may start producing in the first two years, but many won't produce for a number of years. These crops do not see regular tillage, but they do have regular maintenance activities required. Animals can overlap both the annuals and perennials by occupying the same space during certain times of the year. Production of their feed through pasture, annual grains, and perennial forage also create overlaps.

Below are the general conditions we are taking into consideration for each production type when considering how appropriate they are for a particular area of the farm. This background information is important to keep in mind when evaluating the agricultural production and management options for different parts of the farm that will follow.

Annuals

For the purpose of this report annuals are primarily meant to include a broad range of vegetable crops. There are a number of biennials and even crops that are technically perennials but that might fit better into an annual rotation or annual type production system that are lumped in here. A few examples would be crops such as: strawberries, artichokes, numerous culinary herbs like sage and thyme. These not only fit best into annual type production systems but they are also typically grown in the context of a market garden or diversified direct market vegetable operation. Other crops that would fit the annuals designation would be many cut flowers, and crops that are typically grown on larger acreage like grains and legumes.

Land Considerations for Annuals

The vast majority of annual crops are most easily produced on flat to moderately rolling ground with decent drainage, good air flow and moderate pH. In our experience, most annuals are adaptable to a wide range of soil types from heavy clay to sandy soils. Different crops have their preferences, some stronger than others, but most soils in this region (including those at Luscher) will grow annual crops well, and can be improved over time with good management practices to increase fertility and yields. This has been demonstrated in both the community garden plots and with the CSA program.

Areas with seasonally poor drainage need to be removed from production during wet seasons (typically fall through early spring), but can be used for production during the dry season and cover cropped for the remainder of the year in order to improve the soil.

Flat areas are easiest and safest for tractor operations but moderate slopes can be safely cultivated. Attention needs to be given to the soil's tendency to erode from water. It can be very difficult to predict exactly how soils on slopes will react to tillage and micro variations from location to location are typical. Based on the current conditions seen in the soils cultivated by the CSA program and the similarity of soil types across the property it is likely that erosion is a minor concern if care is taken. Cultivating on contours and increasing soil organic matter will reduce erosion potential. Agricultural managers need to pay close attention to any new fields and how they react to cultivation so that small adjustments can be made as needed.

Water Considerations for Annuals

Annual crops in this region are typically grown using seasonal irrigation during the dry season (late April through September or early October). There are some annual crops that are suited to non-irrigated production, but most will produce uneven results from year to year and will see lower yields. This makes non-irrigated production commercially difficult.

A typical rule of thumb for irrigation of annuals is to allocate 1" of water per week during the growing season (27,143 gallons per acre). During peak weeks of water useage a crop may use up to three times that amount, but on a diversified farm there will be other areas at the same time that will use far less so 1" is a good average.

Water needs to be relatively clean for efficient irrigation. In the case of Luscher farm it appears that all water would be well water which simplifies testing requirements for commercial production and typically requires less filtering than surface water sources.

In our experience most crops in this area are produced with either drip systems or overhead irrigation (flood and furrow irrigation is not typical and not appropriate). Different crops and different cropping systems prefer one or the other and depending on the system and the crop they can both be used efficiently. Drip irrigation requires more filtering, initial installation costs and for widely spaced crops will typically deliver water more efficiently. Overhead sprinkler irrigation requires little filtering, and typically is faster and cheaper to set up, and is well suited to closely spaced crops, but requires higher pressure to run.

Clean water is also necessary in commercial production for packing crops that need some cleaning. This includes most crops in this category and in some cases clean water will also be used for cooling and hydrating harvested crops. This water needs

to be tested regularly (typically annually at a minimum) to meet most food safety standards.

Infrastructure Considerations for Annuals

Annual crop production infrastructure requirements vary widely depending on the crop mix and management type. For example, if fields were to be leased to a farmer who was based off site and was only planting one or two crops and was harvesting the crop and then sending that crop to a packing facility offsite, there would only be the need for a functioning irrigation water distribution system large enough to irrigate the fields and sanitation facilities for workers on site (porta-pots with hand washing stations or access to restrooms with hand washing sinks).

On the other end of the spectrum, a farmer who is based on site, growing a diverse range of crops and packing on site (as the current CSA program does) needs significant covered and enclosed space, as well as the same functional irrigation distribution system. Space needs to be allocated for equipment and supply storage, packing, curing and storage of produce, and if produce is to be distributed on site there needs to be a public access, including parking, to the distributions site. Many diversified annual operations produce their own seedlings which require greenhouses with access to water, power and sometimes to gas for heating. Additionally many annuals operations, especially those that produce year round, use hoop houses to protect crops and extend their seasons. Because an operation like this needs multiple full time employees and workers, there should also be space for employees to have lunch and possibly to store personal work gear such as rain suits and boots.

The size of all of these spaces is highly dependent on the size and complexity of the operation and its markets. There are no rules of thumb here and each operation will have a unique set of needs.

Market Considerations for Annuals

There are a variety of market types available for annual production and each has particular considerations. Broadly defined these would be wholesale, direct to retail, and direct to consumer. Really this is a spectrum and each one of these categories can be further broken down into sub categories.

Wholesale marketing is when produce is sold to a broker or a distributor who will then resell the crop. These typically have set standards for the produce and the way the produce is packed and the price received is low. Wholesale markets typically involve growing large blocks of single crops which can be managed uniformly. Depending on the crop these can either be harvested continuously, or all in one shot. The keys to wholesale marketing are keeping production costs low and relying on mechanization and larger scale as much as possible. Volume per sale tend to be high and prices tend to be very low.

Direct to retail runs the gamut from selling to large grocery chains to small restaurants. On one end of the spectrum the transactions can be very much like wholesale relationships, on the other they are very similar to direct to consumer.

Direct to consumer may have the widest range of characteristics. This can mean anything from operating a farm stand (on or off site), to selling at a farmers market, to operating a CSA (Community Supported Agriculture) program. Typically there are relatively large marketing costs involved with direct to consumer marketing, but the market is adaptable to a wide variation in quality, size, and variety of produce. Volumes per sale tend to be small, but prices tend to be high.

Educational and Historical Considerations for Annuals

Annuals offer high potential for agricultural education opportunities. Because many crops have short cycles it is often possible for education programs to show all phases of growing a crop within a short period of time. In an operation which is highly diversified there will often be crops at all stages during certain times of year, which allows that short period of time to be on the order of minutes or hours. Additionally, annuals grown for direct to consumer markets have potential for educational benefits that include all aspects of business management from production through complex marketing considerations. Vegetables are typically considered essential to healthy eating and diverse vegetable production offers opportunities for healthy cooking and eating education programs.

Annual crops have been produced commercially in the Upper Willamette Valley for at least 80 years, and likely much longer. Reintroduction of historical varieties, and techniques and tools, also have potential educational value. Organizations like Slow Food USA are attempting to highlight crops that have had historical and cultural significance in the region in order to increase their market value and encourage production.

Management and Labor Considerations for Annuals

Depending on the production approach annual crop production can be very simple from a management and labor standpoint or incredibly complex. Grain production, as an extreme example, can be entirely mechanically planted and harvested on thousands of acres by just one or two people. In cases like that the land managers might only visit the land a handful of times over the course of the year.

Highly diversified vegetable plantings on the other hand may take multiple full time employees per acre of production to manage and sell. On operations such as these the farmers will typically be on the land multiple times per week, if not daily.

There is also a wide range of management arrangements possible for plots of land at Luscher. It is common in agriculture for land to be leased to individual farmers who also grow on other parcels, or who grow solely on one parcel. There are also programs where public land is leased to non-profits who use the land for

agricultural programs, and these often have a strong educational component. Land may also be broken up into multiple leases to foster multiple smaller operations.

Other Considerations for Annuals

The smallest commercial micro annuals operations are typically not less than $\frac{1}{4}$ acre, but these would be extraordinarily rare. Typically most diverse annuals operations are at least 5 acres, with operations in this region frequently managing more than 15 acres in production. There are certainly many examples of new farmers starting in the several acre range, but most look for additional land after the first year or two. Land lease rates vary widely depending on number of acres, quality of the land (soil type, slope, drainage, etc.), access to water, power and outbuildings.

Currently the CSA program at Luscher farm reports light predation from deer and other mammals such as gophers and voles. For annuals, gophers and voles are typically dealt with through trapping programs and any increase in scale will need to consider increases in time needed for trapping. Deer present potentially increasing pressure if annual fields expand into currently open spaces that border on wooded and more wild areas. Fencing is typically the only fully effective measure for excluding deer and deer can cause significant economic damage in vegetable crops. There are several types of deer fence, 7-8' tall wire mesh being the most common. Double layer electric wire fences are also used, but are more problematic where the public may come into contact with the fences. Insect pests and diseases have not posed a significant issue in production and will not be likely to increase with increases in production scale.

Perennials

For the purpose of this report perennials are meant to include a broad variety of fruit-bearing crops that are woody shrubs and/or trees that live from 10-50 years. Perennial crops are an appropriate addition to the Luscher plan as they fit into a number of the goals laid out by both the city of Lake Oswego's Comprehensive plan and LAMP. Goals 5 and 8 of the Comprehensive Plan are addressed with these plantings, as planting fruit can serve recreational and historic preservation purposes, as well as help preserve open spaces and natural areas.¹⁰ The public involvement process undertaken by the Parks and Recreation Advisory Board yielded similar goals, with public desire for a balance of uses that include "walking/hiking/biking, urban agriculture, community gardening, agricultural/environmental education and programs" to name the most popular.¹¹

Land

The majority of perennial crops are most easily produced on flat to moderately rolling ground with decent drainage, good air flow and moderate pH. In our experience, most perennials are adaptable to a wide range of soil types from heavy clay to sandy soils. Different crops have preferences, some stronger than others, but most soils in this region (including those at Luscher) will grow perennial trees and shrubs well, and soils can be improved over time with good management practices to increase fertility and yields.

Areas with seasonally poor drainage need to be carefully considered before being planted to perennials. A few fruiting shrubs and trees will tolerate seasonally wet roots and even occasional flooding, but the majority prefer good drainage.

Flat areas are easiest and safest for mowing, vehicle access, and ladder-based activities but moderate slopes can be safely planted and maintained. Attention to the soil's tendency to erode from water needs to be given during the soil preparation and planting stages, but once permanent cover of sod is reestablished around the new trees/shrubs, soil erosion becomes less of an issue.

The properties that make up the contiguous Luscher area (Luscher, Firlane, Crowell) are all suitable for growing most perennial fruit tree and shrub species that thrive in this climate. The steepest sections are not ideal as proper management of perennial tree fruit and shrubs on steep slopes is more difficult and can pose safety hazards. As noted in the LAMP, the soils on these three properties are silt loams that are appropriate to perennial crops, excepting those soils in the wetland areas.¹² Proper management of fertility and perennial weeds, and soil testing to assess available nutrients and to make adjustments prior to planting would be necessary.

¹⁰ Luscher Area Master Plan (LAMP), July 25, 2013; p. 30.

¹¹ LAMP, July 25, 2013; p. 44.

¹² LAMP, July 25, 2013; p. 16.

The areas that are recommended for perennials are currently all in permanent pasture/sod. Plantings would require soil tillage to kill and incorporate sod.

Infrastructure requirements

The perennial plantings recommended in this plan require some basic infrastructure. Generally, fruiting trees and shrubs will require the following infrastructure: irrigation, predator fencing, support, signage, seasonal vehicle access, and fruit storage/distribution sites. These will differ slightly based on the intended site, scale of planting, type of plant, and end use(s).

Irrigation is required by all new plantings, and is best designed by developing zones of plantings that have similar water needs (both seasonal and long-term), and serving them with underground distribution pipes that lead to above ground drip systems. Above ground systems are easily repaired and modified as plants grow and needs change. In our dry summers, fruit quality and plant health are best maintained by irrigating perennials weekly during the months of June, July, and August. A good rule of thumb is that fruiting trees require 8-15 gallons of water per week during these months, and small shrubs will require 4-6 gallons per week. All plants will require irrigation for five years from their planting date, and dwarf trees and shrubs will continue to need them throughout their lives. Grapes and free-standing large trees (apple, plum, pear, cherry) can survive summers once they are established, though fruit quality will be better with irrigation.

Predator fencing excludes any animals/birds that might damage the plants themselves or the ripening fruit. This can take the form of plastic wrapping to protect individual trunks, netting to protect ripening fruit, individual cages for widely spaced large trees, and/or fencing to exclude animals from a dense planting area. The type of crop and the predator will determine what type of protective infrastructure is required, and whether it need be a permanent installation, or if it is required only seasonally, or for the first few years while a tree is still small. Deer damage fruiting plants by eating leaves, fruit, and the tips of new shoots, and by rubbing antlers on bark. Rabbits and various rodents can kill trees and shrubs by girdling them, especially in the dormant winter months. They eat the bark layers of the tree/shrub down in the woody interior, killing the top of the plant. Birds can destroy a crop of fruit just as it begins to ripen, especially targeting soft fruits like cherries, plums, grapes, and berries of all kinds.

Support systems for fruiting trees and shrubs vary by crop. Full-sized heirloom fruit trees do not need support, but dwarf ones do. Caneberries, grapes, and kiwis need trellising systems of varying strength and design. A well considered planting plan takes into account the support needs for various crops, and, like irrigation, groups those species together that need similar support systems. Support systems can also double as netting and fencing support as well, and this should be taken into consideration in any fruit planting plans.

Signage should be an element of any planting, to facilitate understanding amongst the various public users of the park's spaces. Some signage needs will be temporary/seasonal to indicate harvest timing and ownership, and some should be permanent, indicating species/variety, use, historical context. Signage complexity and permanence will also be determined by the placement of a planting on the Luscher property: high traffic areas will require more signage, low traffic sites, less.

Vehicle access to perennial fruit plantings has several variables – fruit use, fruit type, and placement on the property being chief among them. Generally, vehicle access is most necessary during harvest times, pruning, and mulching. For fruiting trees, the removal of prunings is required, or the tree site must be accessible by a commercial chipper to leave prunings in place as mulch. Either way, vehicle access is required for 1-2 days at the end of the pruning season. For all perennial fruit crops, mulch applications require the delivery of organic material to a level site somewhat close to the planting. Harvest of heavy fruits likely to be planted in larger numbers, such as apples, pears and plums, are greatly facilitated by having vehicle access within 100 feet of most of the trees. For the scale of the plantings being recommended at Luscher, vehicle access could be adequately served by the occasional use (3-5 times per year) of interior graveled roads or walking trails, given appropriate care for pedestrians.

Fruit distribution and/or storage points should be a consideration for any of the recommendations made concerning perennial fruit crops. The necessary infrastructure will depend on the scale of plantings, types of fruit, and end use. Small fruits such as berries, grapes, cherries and kiwi generally need immediate cold storage (refrigeration), while larger fruits such as pears, apples, and plums can do well in cool shade for up to a week. Longer storage would require refrigeration. The long-term storage of apples and pears cannot occur in the same refrigeration or passive cold room/root cellar as potatoes, as the fruit causes potatoes to sprout prematurely. For short-term storage of fruits before or during distribution, a shaded, passively cooled shed or outbuilding that is reasonably rodent-proof is invaluable. This same space is also useful for storing harvesting containers when they are not in use.

Markets

There are a variety of market types available for perennial production and each has particular considerations. As with annuals, these would be wholesale, direct to retail, and direct to consumer. Again, this is a spectrum and each one of these categories can be further broken down into sub categories. These methods are best used for the sale of fruit that is unblemished. Examples of appropriate variations on these markets are given below.

CSA – Fruit produced are added to a CSA share plan, as an add-on option or as part of the base share.

Snack-Bar – In-season fruits are used by an on-site snack bar that is selling healthy, local snacks to park visitors, sports field users, community gardeners, and staff.

Off-site Sales – Fruit is harvested and at farmers’ markets, or to local restaurants and stores.

Beyond the three classic types of agricultural marketing available, there are further distribution options for fruit produced at Luscher. While not necessarily providing income to Luscher or a contracted grower, these options remain viable for their ability to make fruit more accessible to the users of Luscher and its surrounding communities. These distribution methods, in combination with the marketing types above, afford the greatest use for all the fruit produced, including those fruits that are not of the first quality.

Free-access – Small, informal plantings are available for “grazing” by visitors and staff and will cause no harm if they go un-harvested.

Low-income/Food Bank Donation – Planned harvests of larger quantities are available to be picked up or delivered to organizations serving low-income Oregonians, such as the Oregon Food Bank, local food pantries, or gleaners groups.

Community Orchard – Membership fee purchases a share of the fruit harvest and commits member to a certain amount of time and labor input over the course of the year to help maintain the orchard.

Community kitchen resource – Fruit is available for harvest and use by third parties contracting to use community kitchen, as well as for educational purposes by Luscher staff (see next).

Educational resource – Fruit is available for harvest and use to serve an educational need as well as feeding class participants while on site.

Community event resource – Fruit is available for harvest and use by caterers/chefs at Luscher community events such as large meetings, community dinners.

These market options for the distribution of fruit harvested from the perennial plantings at Luscher all serve to meet goals set out in the LAMP, including agricultural education, urban agriculture, community gardening, events/activities, and play. The end market(s) will depend, again, on the type of fruit, quantities produced, and “ownership” of the planting.

Educational and historical value

The planting and maintenance of perennial fruiting plants, in both formal and informal ways, has lasting educational and historical value to communities everywhere. By recognizing and embracing the value these food crops held for our forebears, and will continue to hold for future generations, Luscher can actively improve the lives of its community members.

Formal plantings of fruit can open diverse educational opportunities for both adults and children. They can open conversations about urban food security, pioneer living, agricultural/natural interfaces; give children the basis for lessons about bugs, weather, soils, plants, food, cooking, gardening, and health; and give older children and adults valuable hands-on horticultural, business, and cooking experience.

Wilder, less-maintained plantings such as hedgerows offer numerous opportunities for nature study, but also hands-on experiences with historically valuable techniques like wildcrafting, foraging, basketry, and dyeing with plants.

Some educational options include:

- Perennial fruit pruning, care, propagation classes (adult)
- Cooking/preserving classes (adults/children)
- Summer camp classes (children)
- Beginning Farmer programs (adult/teen)
- Cooperative work experience (through Clackamas Community College) (adult)
- Oregon pioneer history (adults/children)
- Edible Foraging/Wildcrafting classes (adults/children)
- Dyeing with plants (adults/children)
- Wildlife/ecosystems (adults/children)
- Small Square Nature Study (adults/children)
- Basketry-/Wreath-Making (adults/children)
- Wildflower Foraging/Arranging (adults/teens)

Management and labor requirements

There is a wide range of management arrangements possible for plots of land at Luscher. It is common in perennial agriculture for land to be leased to individual farmers who may grow on other parcels, or who grow solely on one parcel. Perennial crops are generally managed on long-term leases, lasting anywhere from 5-50 years, depending on the crop and the agreement.

Once the initial outlays of planning, soil preparation, planting, and irrigation set-up are complete, the requirements for successful perennial management are seasonal; there are busy times, and lulls. There are five main groups of management tasks: Pruning/training, weed control/mowing, pest/disease control, irrigation, and harvest.

Pruning/training falls into two main seasons: the dormant season is when the heaviest of the pruning work is done, January through March, and early summer is a time for pruning back excessive growth, generally June and July.

Weed control and mowing generally take up the most time in the spring months, April through June, when grass and weed growth are at their most rampant. Mulching (a form of weed control) can be accomplished any time materials are available and vehicle access is possible. Renewing existing mulched areas is best done after weeds have been cleared and soil temperatures have warmed up (summer). An additional time for important spot weeding is in late fall, clearing the bases of tree trunks and shrubs of any long grasses, weeds, and heaped up mulch that might provide winter cover for rodents (who chew the bark, killing the trees over winter).

Pest and disease control tasks occur throughout the year, based on insect and disease life cycles. Winter is a time to apply two to three preventative sprays, and during the late spring and early summer, as bugs and diseases emerge from winter dormancy, more targeted sprays are used to prevent major infestations, on a weekly basis if possible. Opportunities to apply sprays must be found on the occasional dry days, winter and spring. Well-timed organic spray regimes can go a long way to keeping the worst of the insect pests away, improving fruit quality without sacrificing the health of park users.

Irrigation management, once the system is set up, is fairly low-maintenance. While most perennials do require weekly watering during the dry summers (June-August), a well-designed drip system needs only to be turned on and off (and can even be put on an automated system). The occasional repair of punctures and broken emitters is another requirement, but with the proper repair kit of spare parts on hand, repairs shouldn't be too difficult.

Harvest and fruit cleanup is the culmination of the fruit growing process. It is the job to which most people want to volunteer their help. Ideally the task is spread out across the summer and fall, by choosing varieties that do not all ripen at once, making the job a manageable one. The months of August and September are still the peak months, and fruit harvesting can stretch from June (cherries, raspberries) into November (late apples and pears, kiwi, persimmon).

Animals

The term animals in this report is a broad designation taken to mean livestock, or farm animals raised specifically in an agricultural setting for uses such as food, fiber or labor. Common livestock on farms are cattle for dairy or meat; sheep for wool, dairy or meat; pigs for meat; poultry for eggs and meat; and horses or oxen for draft use. Each species is also very important for their manure contributions to a farm. Livestock can be a valuable component of a small farm as they can be integrated into an existing crop plan to do valuable work cleaning up crop residues, mowing and fertilizing while being raised for their commodity.

Land Considerations for Animals

For the most part, livestock raised for production will be found on marginal lands too steep or too poor to be considered for cropping. Non-arable land on farms is usually grassland or forest and suitable for grazing animals, which can take a non-food crop (grass) and turn it into meat or milk. During certain parts of the year, (after harvest) livestock can be moved through annual vegetable or perennial fruit orchards to clean up residue and add valuable manure to crop ground, and to help break the disease /pest cycle with those types of crops. For instance, sheep or cattle could be grazed through a mature fruit orchard, eating drops, leaving manure and urine, and then layer hens could follow the herbivores and be allowed to scratch through any remaining fruit and manure leavings to effectively act as the cleanup and fertilizer distribution “crew.” After-harvest practices like these are good for the land and the animals, making livestock and their manure an asset instead of a liability.

Historically livestock on farms were restricted to permanent areas due to management constraints. Permanent locations for plants and animals became disease-ridden and sometimes unusable. Modern-day inventions such as inexpensive, portable electric fencing or temporary shelters make livestock farming simpler and less likely to cause manure buildup and the resulting disease factors. Having temporary fencing available enables a farmer to easily move the animals to fresh areas of pasture or cropland, and serves the purpose of layering animals in with annual and perennial cropping plans.

Steep land or areas with poor drainage can also be visited by livestock at appropriate times during the year by utilizing temporary fencing, bringing marginal or formerly unused land into use for a short period of time each year; therefore, increasing the agricultural reach on the farm acreage. Pulsing the landscape in short bursts of livestock activity (grazing/rest) in this manner can actually reinvigorate the landscape and works to increase the diversity of plants and wildlife. This is known as conservation grazing and meets the needs of wildlife and the livestock that coexist on farmland.

Water Considerations for Animals

Livestock need clean, fresh water, or access to fresh water each and every day to

grow and thrive. Animals also need to be restricted from any open water sources in fields. Vacuum breakers should be installed on every hose bibb to prevent any backflow issues from livestock to humans.

Water needs vary from season to season. During the grazing season when the weather is warm livestock may drink gallons of water per day to maintain themselves and aid in proper digestion. Eggs and milk are mostly water. Rotational grazing operations can tap into existing annual crop irrigation systems, utilizing lightweight moveable troughs and hoses. Moving the water source with the livestock ensures even waste distribution and keeps the need for fenced lanes and fixed permanent water troughs to a minimum.

Permanent housing for livestock in wintertime or in a fixed housing situation requires a freeze-proof water delivery system. Frost-proof hydrants are adequate west of the Cascades during most winters with a float system, or during extreme cold weather events could just be used in an on-demand situation. For example, the livestock caretaker would water the animals once a day. Cold weather slows the water consumption of livestock somewhat compared to hot weather, but the amount of dry feed livestock consume in the winter requires more water for digestion, so the intake is about the same summer or winter. Siting troughs and hydrants on south-facing areas of buildings helps keep troughs ice free and water flowing.

Infrastructure Considerations for Animals

Seasonal production of livestock requires less infrastructure than year-round production. In our maritime climate, months of wet weather take their toll on livestock and the land. Seasonal production can be timed to coordinate the selling or slaughter of livestock before the fall rains set in, lessening the need for expensive livestock housing. In addition to portable temporary electric fencing, a simple portable corral is necessary both for receiving and shipping the animals from the farmland. During the off season or when not in use these corral panels could be removed and stored or used for educational functions, i.e., 4-H or draft horse exhibitions.

Year-round production requires a place to house the animals and all their feed and bedding needs for at least three to four months during the most rainy period of the year, in addition to a securely fenced area for exercise. This allows the land to rest properly and keeps manure under cover. A good manure management strategy is deep bedding. The benefits are three-fold; almost all the nutrients from the winter manure and urine can be captured with carbon (straw possibly from annual cover crops or chipped woody material from orchard/shelter belt areas), the animals stay warmer on the deep bedding pack as it gently starts to compost beneath them, and since the animals are warm and comfortable they require less feed.

Layer hens, if kept on site during the winter, would require a hoop house and feed/bedding storage area. An existing hoop house could be used for this or a

separate structure could be built. Layer hens require a minimum of five square feet of floor space per hen, for fixed housing. Long rectangular spaces are less desirable than more square spaces for hens and their habits despite the same or similar square footage. For example, a 20' x 48' hoop house would not be as comfortable to hens as a 30' x 30', even though the square footage of floor space is larger. Hoop house size could be determined by deciding the optimum number of hens desirable for the farm; one hundred hens could be housed in a 500 square foot facility, if the hoop house was larger the flock could be enlarged in the future if the need for eggs eclipsed the one hundred hen flock size. A larger hoop house could also be used for the annuals operation if chickens were no longer a part of the farm.

Market Considerations for Animals

Due to the perishable state of animal products such as eggs or meat, processing and selling retail on site would require extra facilities that would be cost prohibitive for the limited use to process small numbers of animals. However, mobile slaughter is available for poultry in the Willamette Valley, and mobile slaughter for larger meat animals with transport of the carcass to a separate facility for packaging makes animal products a viable go-along for CSA members. Frozen meat or egg shares could be coordinated with CSA vegetable pick-up dates, eliminating the need for frozen meat storage. Eggs could be stored in the walk-in cooler alongside vegetables.

A market also exists for the sale of offspring, such as weaned calves, lambs, piglets, or ready-to-lay pullets. Heritage breed livestock is making a comeback, making the sale of breeding stock a viable commercial option in addition to or in place of marketing meat products.

Educational and Historical Considerations for Animals

Breeding stock of historical significance to the Willamette Valley or specifically Luscher Farm and the surrounding area would offer an educational aspect to a livestock operation. Meat, milk, wool, and leather were important products on small farms in the early twentieth century due to transportation limitations. Farms were more self-sufficient and had to produce many household needs on farm. Before the advent of tractors draft animals such as oxen or horses were also an important part of the livestock population of the era.

Heritage livestock breeds and types present many opportunities for education from farm work exhibitions such as plowing matches to prepare annual crop land, haying, transport of crops to storage, to hauling manure to fields, sheep shearing, wool spinning and milking. Simply restoring livestock to the farm would present a picture of farm diversity that was the norm in the late nineteenth and early twentieth century.

Heritage livestock also meshes well with the local food movement. Early settlers and farmers selected hardy stock and many breeds or types of livestock evolved

(landrace) to match local weather conditions and the needs of the particular farm.

Management and Labor Considerations for Animals

Part of the reason livestock has disappeared from the farm landscape is the need for a daily check of the animals themselves, either by the farmer or an employee.

Livestock need feed and water available every single day.

Management of livestock can be divided into two categories, passive or intensive. Passive examples might be permanently fenced pastures with a water trough and simple shelter where cattle, sheep, or draft animals grazed and only required a cursory look by farm employees on their way to other farm tasks. For most of the year the animals feed themselves on pasture and only need feeding in the winter months. Passive or continuous grazed situations are land extensive and low labor with a small number of animals requiring a large land base to feed themselves during the growing season. Income from sales is low due to low animal numbers; however, labor requirements are low also. Large animals safe from predators are usually found in this type of setting, or in the case of sheep, livestock guardian dogs may be employed to keep the animals safe.

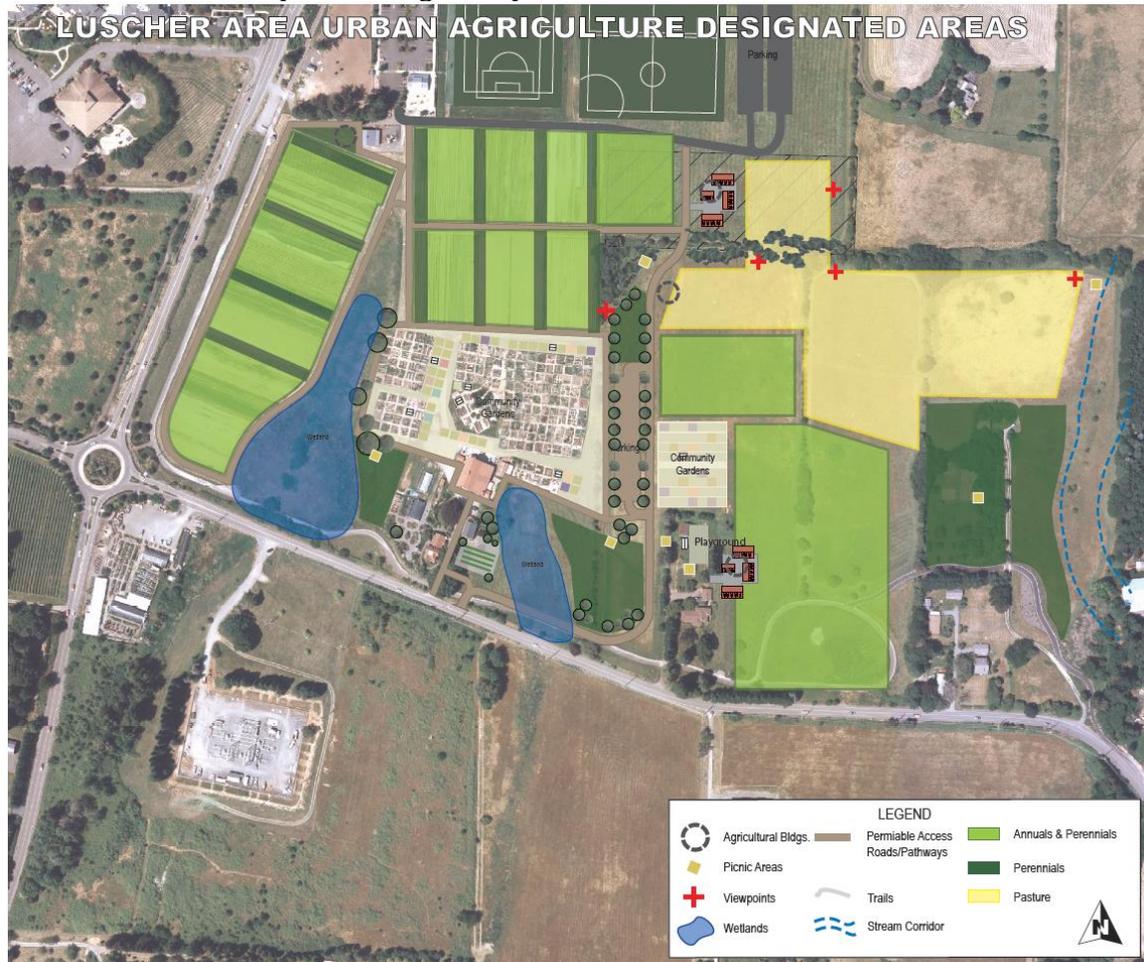
Intensive examples use temporary electric fencing/shelters and large numbers of animals or birds during the growing season and have high labor requirements due to the fact that all needs are met by the farm owner/employee. Transporting feed and water to the animals or rotating electric fence for grazers is labor intensive and may take up to an hour per day per species depending on land base, pasture quality, and distance traveled from feed storage areas and the water source. Income from sales is higher due to the increased amount of animals on the land; however, labor costs are higher due to the intensive nature of the rotation of pastures.

Other Considerations for Animals

The skill set needed for animal husbandry is hard to come by in modern times, agricultural courses deal with industrial production methods that are hard to duplicate in a small farm setting. Hands-on training works the best with a trusted mentor close by. Small acreages may be leased by nearby livestock farmers to use on a seasonal basis avoiding the need for costly infrastructure.

Possible Uses by Area

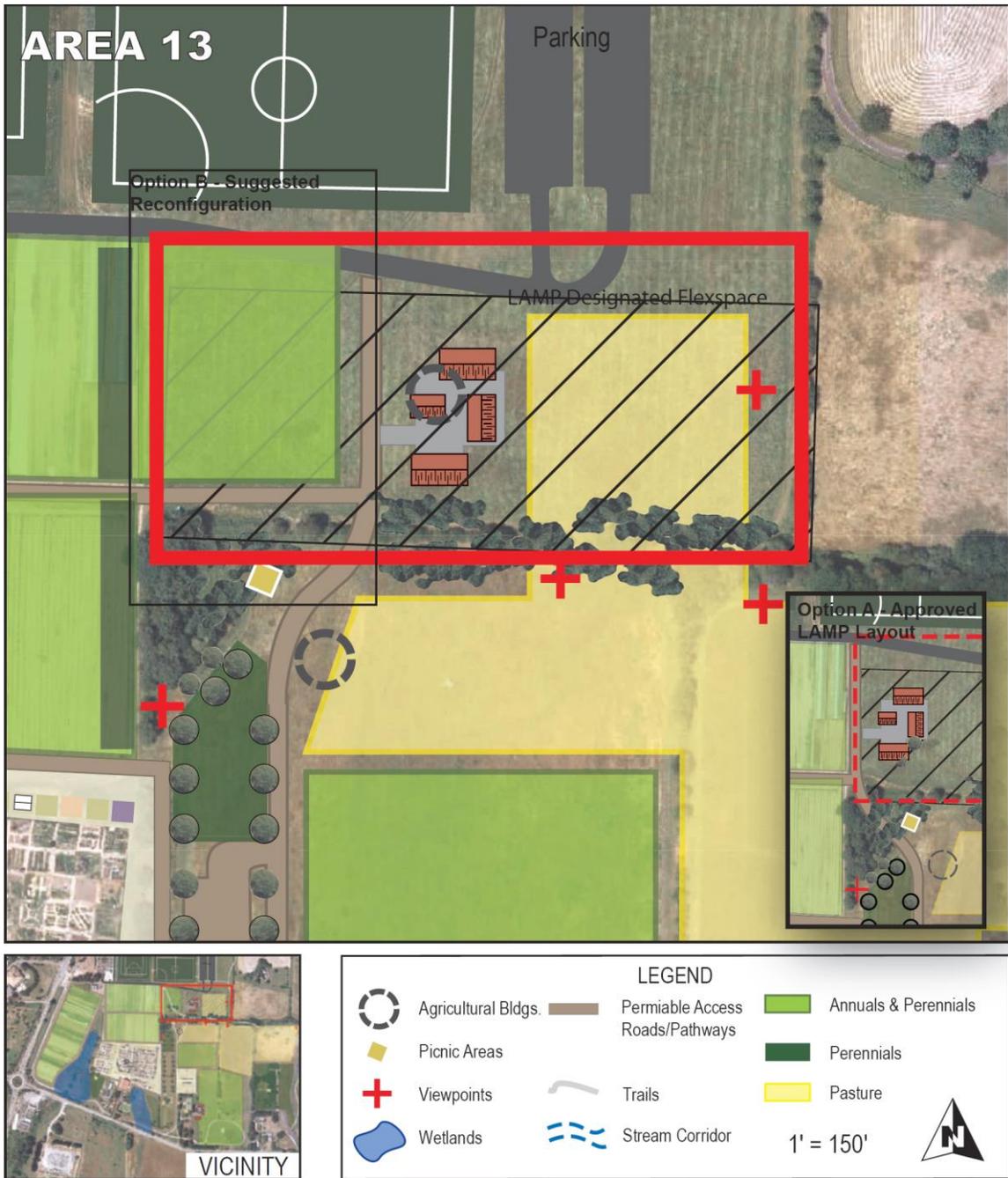
What follows is a breakout of each area identified in the LAMP (p63) for potential agricultural use, and areas that we think might have agriculture as a secondary use. The numbers in the headings refer to the following map within each section heading there is a list of possible agricultural uses, a table of pros and cons for those uses, and timelines for implementing each possible use.



Map 1 - The above map is an overview of the areas under consideration in this document. Colored shading loosely signifies possible uses that are discussed further in the sections that follow.

14- Existing CSA fields

The existing CSA fields are already in annual crop production and have been for some time now. These spaces could also be appropriately used for both perennials and animals. We are listing several options with discussions on each below.



Map 2 - This map shows area 14 with a possible small expansion into area 13 in the northeast corner. Discussions on the potential for incorporating perennials (as shown) and livestock are in the following section under options 2, 3 and 4. Discussions of the possible expansion into area 13 are in the section below on area 13.

Option 1

The first option for these fields is to leave them in annual crop production. Irrigation systems, crop rotations and significant knowledge about growing conditions in these fields have already been developed. The following lists pros and cons for leaving the field in annual production:

Pros:

- Irrigation systems are already developed.
- Significant knowledge base for specific growing conditions in the fields.
- Market for produce is developed.

Cons:

- Reduces space available for other options

Option 2

It would be possible to incorporate perennials into the existing annual fields. Using perennials as hedgerows within annuals fields can have advantages but there are also potential drawbacks. Considerations for incorporating or replacing annuals space with perennials are listed below.

Pros:

- Creation of beneficial habitat close to annuals
- Wind breaks - this can also be a con in the case of air flow and disease pressure, but it can be a benefit in summer water conservation.
- Increases biological in the fields.
- Increases product diversity.
- Creates natural divisions between plantings and markers of field edges that remain from year to year.
- Can increase airflow for perennials in some cases this can be a benefit for disease reduction.
- Increasing diversity in the fields adds educational opportunities.

Cons:

- Creation of harborage for pests such as mice, voles and slugs.
- Potentially blocks panoramic views – although it can also create interesting visuals.
- Reduces useable space for annuals.
- Complicates irrigation, especially when perennials are adverse to overhead irrigation.
- Complicates management of perennials by spreading them out over long distances.
- Can complicate pollination for some perennials.

It would also be possible to partially or completely replace blocks, or the entirety of the annuals fields with perennials. We see this as an unlikely scenario. Arable farmland in the upper Willamette Valley is rapidly disappearing. High value annual or perennial crops serve the community and provide a way for the community to connect with their food source through the CSA program, which is currently based around annuals production.

Option 3

Animals could be incorporated into the existing annuals fields as a rotation in the crop cycle. This is a practice that is used by some farms¹³ to increase fertility and to reduce weed pressure. Considerations for incorporating or replacing annuals space with animals follow

Pros:

- Rotational break from annuals helps break pest and disease cycles.
- Proper use of animal grazing increases fertility for annual production.

Cons:

- Requires good fencing and can still create potential food safety and crop damage if isolation is not effectively maintained.
- Reduces the amount of space available for crop production.
- If done poorly can decrease fertility, increase weeds and create compaction.

As a variation, it would also be possible to convert all of the annuals fields to animal pasture. We see full conversion to animals as an unlikely scenario for the same reason given above for why full conversion of these fields to perennials is unlikely.

Option 4

Both options 2 and 3 could be incorporated simultaneously with the same lists of pros and cons for both.

Timelines

The current CSA program has a contract with the city that would mean that any changes taking the current fields out of annual agriculture and into perennials or animals before their contract is up would be need to be managed by the CSA program or at least coordinated with them.

Other than that limitation, any of these options could be implemented within one growing season. Perennials could be planted in the first year and depending on the type they would come into production anywhere from one to 10 years after planting. Pasture for animals can be established in 1 to 2 years, depending on type and approach.

¹³ Three Oregon farms in the area that have incorporated this approach for many years now are Winter Green Farm in Noti, Persephone Farm in Lebanon, and Square Peg Farm in Forest Grove. Winter Green Farm has used a 5 year rotation with two years of pasture and three years in vegetables. They are currently reworking their rotation into a 6 year cycle. They graze cattle and also use permanent pasture. Persephone rotates laying hens through their annual fields to increase fertility. Square Peg is using hogs for one year of their rotation in their vegetable fields.

13- Flexible Use Area

The flexible use area slopes up from west to east. The slope at the western edge of the field is slightly shallower and gradually steepens as it goes east. The north edge of the field borders planned new sports fields and a parking lot. There is a road that is planned to cut through this area, oriented north/south, to connect the north end of the farm to the south for emergency vehicle use and internal farm use, but not for use by the public.



Map 3 - Area 13 showing options 1 and 2 with grazing only on the eastern side.

Option 1

The western edge of the field has a shallow enough slope that it may work to extend the current annuals fields adjacent to it up the slope.

Pros:

- Increases land available for annual production (or potentially replaces land removed from production by paving a road at the north end of the current CSA program fields).
- Reduces area that parks maintenance needs to mow and maintain.

Cons:

- Due to slope this field has more potential for erosion from annual tillage than existing fields (reassessment would be advised after 1-2 years of tillage).
- The current plan for the east/west road shows it making a slight turn to the south that would cut into the proposed field expansion. Non-rectangular fields are highly undesirable for the kind of annual agriculture currently being practiced as they greatly complicate tillage, irrigation, and crop planning for rotations. This expansion would be far easier to justify if that road could be straightened in the area where it passes the annual crop production fields.
- The north/south road placement in the LAMP would need to be moved east to accommodate this field.

Option 2

The flexible use area is a potential location for a new agricultural production center on the farm. This could include barn space for storage of equipment and supplies, spaces for crop packing, curing and storage, and space for distribution and retail sales. Additionally the site could include greenhouses for propagation, and separate barn space for housing animals and feed.

Pros:

- Central location to current production spaces and potential new spaces. This would reduce transportation through other areas to access fields saving time and fuel.
- Consolidation of production related spaces also reduces transportation time and costs.
- Isolation for commercial operations from other programs like community gardens and the education center. These spaces could still be used for education but when not in use for education it would separate traffic flow for increased traffic equipment operation safety.
- Construction on slope opens opportunities for partially buried structure that takes advantage of temperature moderation for crop storage.

- Adjacent to new parking lot for distribution and retail potential. This is on the non-production field side so it does not present a traffic issue with farm equipment.
- Possible retail space connects sports community with agricultural side of farm.
- Access from the road is from a traffic signal controlled intersection.
- Dedicated agricultural production use space that doesn't need to be shared with other uses.

Cons:

- Cost of construction on a brand new site.
- Potential increases in traffic volume in the sports areas.

Option 3

Grazing is a third option for this site.

Pros:

- Pastureland protects soil from erosion.
- Grazed areas near annual crops and buildings help with rodent control by keeping cover/habitat to a minimum.
- Steep ground unsafe for tractors is suitable for grazing.
- Locating pastures near barns eases animal handling chores.

Cons:

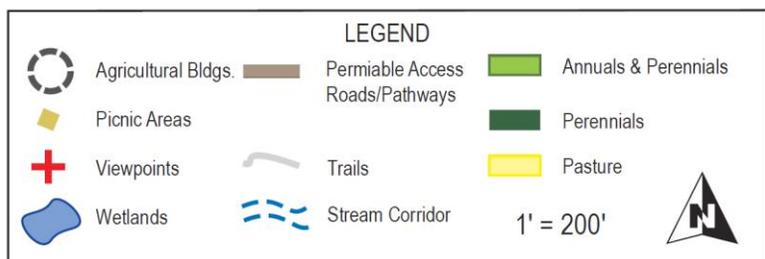
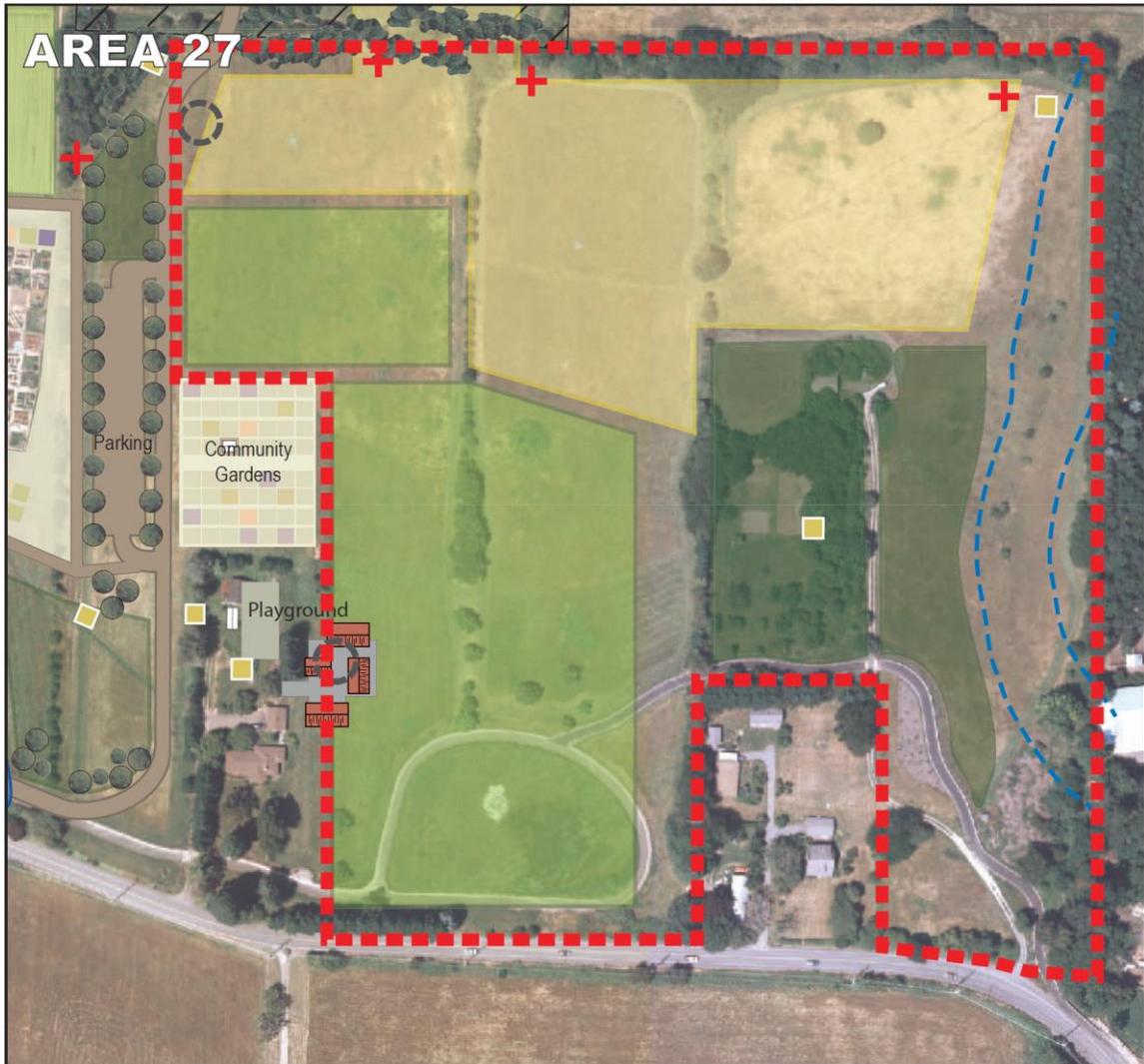
- Poorly managed grazing can cause soil erosion.
- Manure buildup may be too close to public trails, sports fields.
- Livestock may escape in crop areas.
- Permanent fence expense and maintenance.

Timelines

Extension of the annuals fields could be done any time the soil moisture conditions are right and plantings are ready to go into the ground. Grazing could begin as soon as fences are installed that would securely enclose animals to protect them from the public and to protect annuals crops from escaping animals. Both of these could easily be implemented within a matter of months. Construction of new buildings would be dependent on funding and the scope of the building project. Construction itself would likely have a timeline of 6 months to a year once construction begins but would need to be preceded by design and fundraising which have more variable timelines.

27- Grassland with Oaks and Maples, Trails and Livestock Pastures

This designation covers a large tract of land in on the southeast side of the property. There are four distinct areas within this section. Most of the western half of this



Map 4 - Area 27 showing two potential areas of annuals on the west side, grazing on the steep slopes on the north edge, the rectangular “Crowell’s Garden” in the middle, and a potential section of perennials to the east of that along side the stream corridor.

tract is gently sloped and contains an old fence line that is now a naturalized hedgerow. The far eastern edge contains a partially buried streambed that requires

a buffer and will not be considered for agriculture. There is also a sizable rectangular cut out which is not part of the property and just to the north of this cutout there is a small orchard and garden space that is enclosed by old fence lines which again are grown up with trees (Crowell's Garden). Most of the northern edge of this space is more steeply sloped.

Option 1 - Crowell's Garden Space

Heirloom fruit tree plantings in current enclosed garden space. Uses the existing fruit and nut trees in this space to form the foundation of a mixed fruit orchard based on historic varieties and large, widely spaced 10-20 foot tall trees. Planting of semi-dwarf historic fruit varieties within this space provides historic relevance, shade trees for classes and visitors, and fruit for markets, on-site use, and donation

Pros:

- Fruit and nut trees are already planted in this site
- Irrigation infrastructure is in place.
- Addition of large trees further creates a wooded, shady space with an open understory for visitors and classes to use as outdoor classroom, picnic area.
- Existing hedgerow gives a sense of quietness and separation from larger farm, suitable for educational uses.
- Mowing around trees is possible once they reach mature height.

Cons:

- Distance from main parking areas and farm roads makes fruit harvest and transport more reliant on paved walking trails as roads.
- Distance decreases level of care given to trees, as members are less likely to visit orchard if they have to carry in supplies and tools.
- Existing trees will shade new trees if they are planted too closely and serve as vectors for diseases and pests to transfer onto new plantings.
- Historic theme is removed from historic center of Luscher farmhouse/barn
- Existing hedgerow creates privacy inside orchard for troublemakers and loiterers.

Option 2 – Crowell's Garden Space

Community Orchard in existing enclosed garden space. Use the existing large fruit trees as a foundation for a Community Orchard. Planting creates a resource for fruit production and horticultural experience for Community Orchard members who might otherwise not have access to homegrown fruit.

Pros:

- Existing fruit trees give a foundation to the planting
- Distance from main farm parking area provides privacy from general public, adding security to members' fruit

- Existing hedgerow provides privacy from passersby and possibly from deer, adding security to members' fruit without necessitating a fence
- Irrigation infrastructure in place

Cons:

- Existing fruit trees are large, heirloom trees of unknown variety. They will shade new plantings of dwarf fruit trees, and serve as vectors for diseases and pests to transfer onto new plantings.
- Existing hedgerow will shade new plantings, and provide cover for troublemakers and loiterers, making members' fruit vulnerable to human depredation
- Distance from main farm roads and parking areas makes vehicle access more challenging and reliant on paved walking trails. Distance possibly decreases level of care given to trees, as members are less likely to visit orchard if they have to carry in supplies and tools.
- Limited space without obvious contiguous area to expand into as Community Orchard membership/desire grows

Option 1 – North Slopes

Grazing is the most likely scenario for any sort of production on the steeper sections. Our only alternative suggestion is either to keep mowing this section or to turn it back to forest and native plantings.

Pros:

- Pasture land can protect soil from erosion.
- Grazing utilizes land too steep for crops and equipment.
- Grazing animals can increase diversity in meadows.
- Landscape is maintained by livestock instead of Park maintenance.
- Livestock grazing adds to pastoral views.
- Livestock could be used to rough out naturalized hedgerow before removal and replanting of more desirable hedgerow plants.

Cons:

- Expense of permanent fencing of stream buffer.
- Poorly managed grazing may cause erosion.
- Permanent livestock fencing will over time add a natural hedgerow if not maintained.
- Livestock could escape to streambed.
- Livestock may be harassed by hikers or pets.

Option 1 – Western Fields

Most of the lower sections of these fields are well suited to annual crop production. The slopes are moderate and based on current vegetation it appears that the soils

are some of the most fertile on the farm. There are numerous ways these fields could be configured. The simplest would be to fit them between existing fence lines, pathways and hedgerows. Alternatively the trees that border historic fence lines and the existing walking paths could be removed or rerouted which would allow better access for tractors and more complete use of the space for production.

Pros:

- The largest open spaces available for expansion of annual production.
- Spaces potentially large enough to create long rows and easy turn arounds for tractor work.
- Significantly decreases mowing needed
- Creates open vistas if trees and hedgerow are removed.

Cons:

- Potentially requires removal or relocation of old fruit trees and hedgerow
- Potentially requires rerouting of hard-scaped walking pathways.

Option 2 – Western Fields

Mixing in Animals and/or Perennials. This is the same scenario as with current CSA program fields and has the same pros and cons.

Option 3 – Western Fields

As a variation on the annual crop production, or addition, a demonstration garden for education programs could be located inside the existing circular path at bottom of field.

Pros:

- Proximity to road and paved walking trails ensures accessibility
- Distance from parking area and high traffic farm roads creates more visitor safety and tranquility
- Area has good air and soil drainage for a variety of crops

Cons:

- Space is a natural amphitheater suitable for events
- Demonstration garden is slightly removed from historic heart of the farm and is some distance from tools and parking facilities
- Space may be unsuitably large and require excessive maintenance depending on program needs and resources.

Option 4 – Western Fields

Small, browse-able fruits as part of a Demonstration Garden for education programs could be planted inside the circular path at bottom of field. Plantings would be of a

small-scale and backyard appropriate nature that would serve as examples for homeowners, educators and landscapers. Plants would serve as examples for how-to educational programming. Fruits would be available for browsing by visitors, staff, and classes. Excess could potentially be harvested for donation and/or on-farm use.

Pros:

- Natural boundaries of path and road create an enclosed space similar to peoples' own home gardens
- Distance from parking and production areas of farm creates a sense of privacy
- Good water and cold air drainage for growing
- Small fruit plantings can be easily and successfully integrated into a larger demonstration garden of ornamentals, shrubs, and small trees.

Cons:

- Separation from parking area and Luscher house/barn activities might mean fruit goes unpicked. Small fruits are best planted in well-traveled areas.
- Area is a natural amphitheater suitable for hosting events

Option 5 – Western Fields

Community Orchard adjacent to new Community Garden plots. Create a fenced block planting in one of the areas north, east or southeast of the proposed community garden plots expansion area. Planting creates a resource for fruit production and horticultural experience for Community Orchard members who might otherwise not have access to homegrown fruit.

Pros:

- Block planting facilitates efficient irrigation, fencing, and support systems
- Proximity to parking and farm infrastructure roads allows for easy vehicle access
- Proximity to community garden plots ensures “eyes on the land” and decreases the potential for neglect. Remote planting that are infrequently visited are often unintentionally neglected letting pest and weed problems get out of hand. Sites which are regularly visited are less likely to suffer from these problems.
- Proximity to the central core of the farm increases visibility to the project, potentially increasing membership.

Cons:

- Proximity to the central core of the farm increases the possibility of fruit theft.

Option 6– Western Fields (and other areas)

Heirloom Fruit trees along walking paths. Planting of 10-20 foot, semi-dwarf historic fruit varieties along the paved walking path on the north side of Rosemont Rd. provides historic relevance, shade trees and stopping points for path users, and fruit for markets, on-site use, and donations.

Pros:

- Informal plantings along the walkways bring the farm experience to users who might not otherwise seek it out.
- Occasional seasonal access for harvesting, mulching and pruning removal is facilitated by proximity to paved walking trail, without the added need of further farm road infrastructure.
- Trees offer a buffer between paths and other agricultural uses in adjacent fields
- Trees offer shade to animals in adjacent fields without being inside their fencelines.

Cons:

- Widespread trees, rather than planting a block, make for more complex irrigation systems
- Widespread trees make for more complex harvesting plans
- Poorly sited trees could cause fruit mess on walking paths in fall

Option 7 – All Spaces

Edible Perennial Hedgerow. Augment the existing wild hedgerows on the property with further plantings of medicinal and edible trees and shrubs. Adds to the educational possibilities for the wilder edges of the Luscher property, and natural open spaces are maintained and improved with additional forage sources for wildlife and domestic livestock.

Pros:

- Increases interest for foot traffic along the wild edges of the Luscher property.
- Adds educational value to the wild edges of property.
- Adds wildlife habitat and forage sources
- Opens discussion about wildcrafting/foraging as food/fiber/medicine source for historic residents and current urban dwellers.
- Introduces species that will compete and shade out Himalayan blackberry.
- Plantings consist of seedling species available at lower costs and higher numbers than grafted varieties of cultivated fruits.
- Irrigation is unnecessary

Cons:

- Planting into existing hedgerows has lower success rate than traditional orchard plantings due to weed and light competition.
- Himalayan blackberry pressure remains an issue.

Timelines

Any combination of the above options could be implemented slowly over time. Plantings should occur after the hardscaping of path/trail layout and construction is complete. As there is little infrastructure needed for the perennial plantings other than irrigation and/or fencing, plantings can be made slowly over time, depending on budget, staffing, and community partner resources. Planting designs, stakeholder inputs, plant sourcing, soil preparation, and community/organizational partners all need to be in place before plant installation.

18- Open Green Space

This is a small triangle of space to the northwest of the Luscher farm house. It can be seen on the east edge of Map 5, below. This is adjacent to the Rogerson Clematis Collection and community gardens, and slopes down to a designated wetland. It is isolated from other agricultural production areas.

Option 1

Heirloom fruit trees. Planting of 10-20 foot tall, semi-dwarf historic fruit varieties across the west-facing slope provides historic relevance, educational uses, shade trees and stopping points for visitors, and fruit for markets, on-site use, and donations.

Pros:

- Proximity to the Luscher farmhouse, Clematis collection, and community gardens ensures active visitation, reasonable vehicle access, and timely care
- Recreates historic model of useful fruit in close proximity to farmhouse for kitchen use.
- Proximity of wetland and managed gardens upslope could make the need for irrigation redundant.
- Could serve as one small part of larger heirloom fruit tree plantings.

Cons:

- Slope and wetland proximity combine to make mowing difficult
- Relatively small space limits the scale of the planting.

Option 2

Small, browse-able fruits could be planted on the west-facing slope contiguous to the existing Clematis collection. Plantings would be of a small-scale and backyard appropriate nature that would serve as examples for homeowners, educators and landscapers. Plants could serve as examples for how-to educational programming.

Fruits would be available for browsing by visitors, staff, and classes. Excess could potentially be harvested for donation and/or on-farm use.

Pros:

- Increased traffic through the Clematis collection
- Increased use of the area surrounding the farmhouse, an historically accurate model of small-fruit plantings for family use.
- Excellent fruit access for visitors, staff, volunteers
- Slope provides good air and water drainage

Cons:

- Large flood events could present problems to lowest parts of plantings.
- Small size limits scale of plantings.
- Proximity to Clematis collection could distract from that organization's mission.

Timelines

Either option for this area could be accomplished at any time, given appropriate steps. Stakeholder input, plant selection and planting design, soil preparation, plant sourcing, irrigation design and installation all need to occur prior to planting. Neither option is dependent on other recommendations' occurrence.



LEGEND

Agricultural Bldgs.	Permeable Access Roads/Pathways	Annuals & Perennials
Picnic Areas	Trails	Perennials
Viewpoints	Stream Corridor	Pasture
Wetlands		1' = 200'

Map 5 - This map shows the new entrance area (outlined in red) which has good potential for incorporating perennial fruit and nuts into the landscaping. The area 18 small triangle from the previous section can also be seen on this map as the perennial section on the western edge of the map.

23, 24 , 25, 26 entrance and parking area

These areas border the entrance road and parking areas to be built. There is good access due to proximity to parking and other facilities but the spaces are relatively small and isolated from other agricultural production. They do sit close to the community garden space and education centers.

Option 1

Browse-able small fruits and various varieties of vines and shrubs planted in place of (or integrated with) standard landscape ornamental trees and shrubs. These would serve to welcome visitors and users with farm-appropriate edibles. Plantings would be of a small-scale and backyard appropriate nature that would serve as examples for homeowners, educators and landscapers. Plants could serve as examples for how-to educational programming. Fruits would be available for browsing by visitors, staff, volunteers, and classes. Excess could potentially be harvested for donation and/or on-farm use. Zenger Farm is a good example of integrating entrance and parking areas with edible perennial plantings.

Pros:

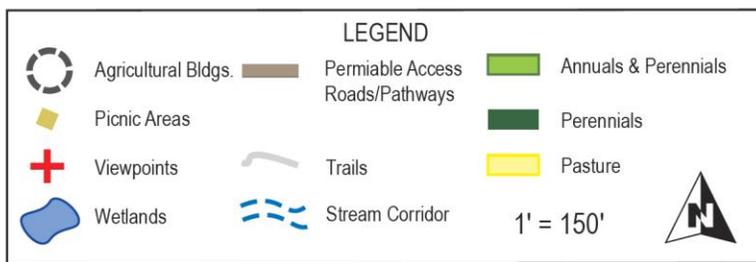
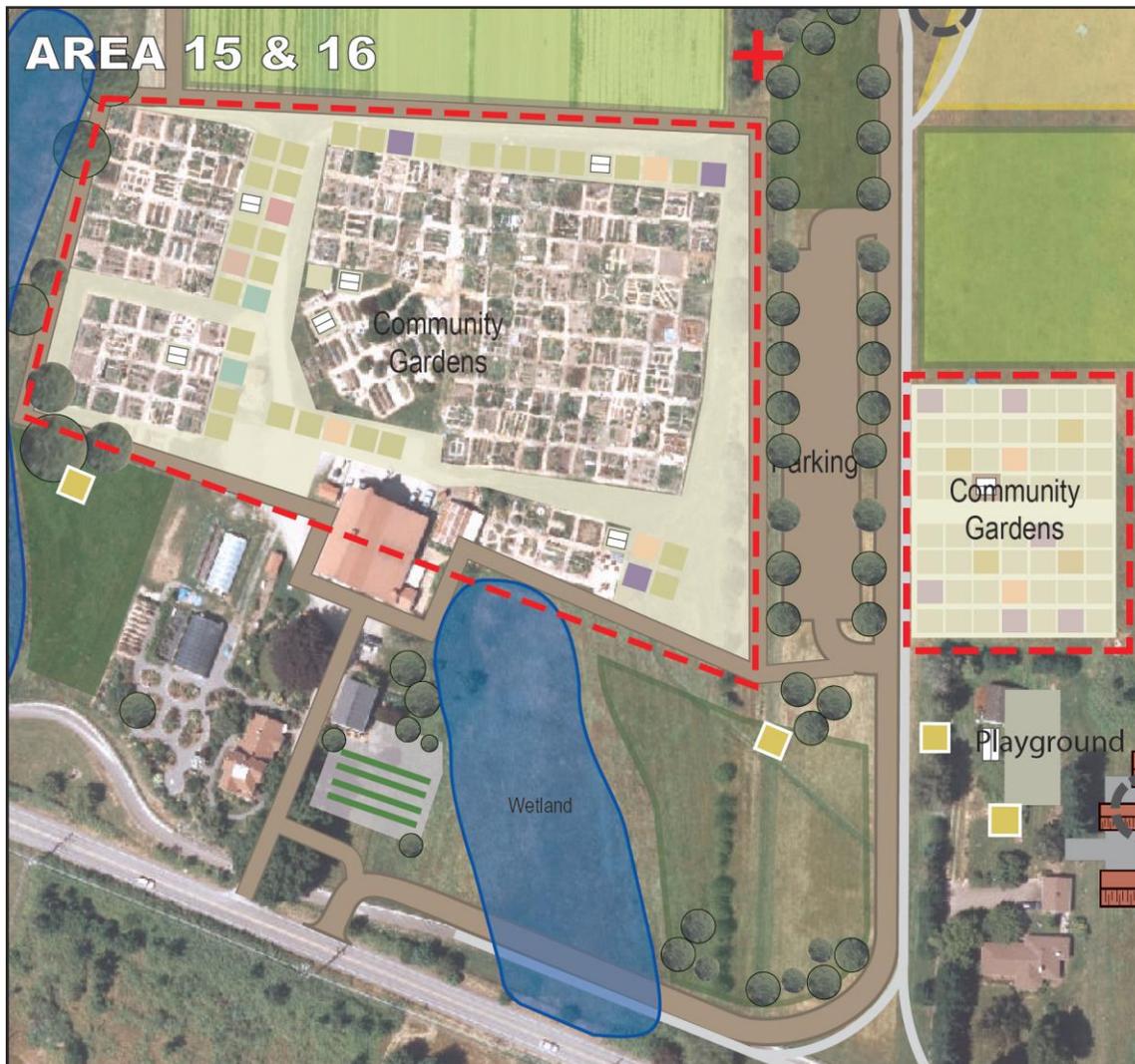
- Small plantings create interest, provide food, and replicate home gardens to arriving visitors.
- Could be integrated with picnic areas and landscape design.
- Proximity to parking and roads provide easy vehicle access.

Cons:

- Small, non-contiguous areas bordering hardscaped surfaces require inefficient, multiple irrigation plans
- Hardscaped surfaces surrounding parking areas required to maintain foot-traffic surfaces in rainy season preclude plantings of any reasonable or useful scale.
- Use of plantings for educational programming creates potential for unsafe proximity of class attendees and parking/road traffic

Timelines

This option requires the process of road and parking area construction to be completed before installation. Installation could occur immediately after construction, or could be implemented in stages by area as designs are agreed upon.



Map 6 - The existing community gardens are the large outlined section to the west with new plots designated by small colored squares. The new community garden plots are outlined to the east of the new parking area.

15 existing community gardens and Demonstration garden

This is the area just to the north of the white barn. These are well established community garden plots and there is also a large plot which is a demonstration garden that has annual garden beds as well as tree fruit.

Option 1

Planting small browse-able fruits and integrate more examples of small perennial fruits within the existing demonstration garden. Plantings would be of a small-scale and backyard appropriate nature that would serve as examples for homeowners, educators and landscapers. Plants could serve as examples for how-to educational programming. Fruits would be available for browsing by visitors, staff, volunteers, and classes. Excess could potentially be harvested for donation and/or on-farm use.

Pros:

- Enhances an existing feature of Luscher Farm with minimal inputs or additional irrigation.
- Proximity to central core of farm and visitor traffic.

Cons:

- Area is under pressure for the creation of additional community garden plots.
- Confusion over use and provenance: proximity to community garden plots could leave visitors confused as to what is browse-able, and what is off limits.

Timelines

The option for this area could be accomplished at any time, given appropriate steps. Stakeholder input, plant selection and planting design, and plant sourcing need to occur prior to planting. This option is not dependent on other recommendations' occurrence.

16 proposed community gardens

This is the area just north of the new environmental education center. It is separated from the older community garden plots by the new parking area.

Option 1

Incorporating Community Orchard (see above for description about Community Orchard option) into proposed Community Garden spaces. Rather than having a separate orchard, turn some of the proposed plots into a member-driven Community Orchard.

Pros:

- Leaves areas outside of the proposed new community garden plots available to further annual crops, and animal production.
- Integrates perennials and fruit into annual gardens area giving gardeners a close up view of fruit production and inspiration for their own plantings.

Cons:

- Removes garden plots from annual community garden production.

- Without careful design it could create shady spots in the garden or root competition (occasional shade could be seen as a benefit in some circumstances).

Timelines

Timing for this option would be concurrent with development of the new community garden spaces. Based on input from Luscher stakeholders, this seems to us to be an unlikely option due to the cons.

7 - Existing Storage Facility

This is the area near the northwest edge of the property. The area can be seen as the small building next to the triangle of perennial shading on the north edge of area 14 in Map 2. The storage facility referred to is the red barn that is currently split between use by the CSA program and parks maintenance. There are currently two very small triangles of open space to the south and west of the red barn. These triangles are too small and sloped to present good options for easily expanding this area without conflicting with current CSA program fields.

Option 1

One option is to continue with the red barn as a shared space between the CSA program and parks maintenance.

Pros:

- The spaces are a known quantity for the CSA program and parks maintenance.

Cons:

- The red barn and surrounding area is not large enough for all CSA needs, which means they have to travel between multiple locations during harvest and distribution.

Option 2

If an alternate space for the CSA program needs can be developed parks maintenance could take over the entire red barn and consolidate their storage

Pros:

- Easier for parks maintenance to work out of a single space.

Cons:

- Cost of developing an alternate space for the CSA program.

Timelines

Option 2 depends on the timeline for developing an alternate space for the CSA program needs.

17 - Farmstead Area

This is the white barn that is currently shared by the CSA program and parks maintenance. It can be seen clearly on Map 6 as the largest roof, which is also bisected by the outline for the existing community garden area. This is the current distribution center for the CSA program and also serves as their washing and packing area, tractor storage, and dry crop curing and storage area.

Option 1

One option is to continue with the white barn as a shared space between the CSA program and parks maintenance.

Pros:

- The spaces are a known quantity for the CSA program, parks maintenance and current CSA members.

Cons:

- The barn, which was originally designed for dairy, has awkward spaces for the current uses
- The barn is isolated from production areas by the community gardens which requires frequent traffic of farm vehicles through and around the community gardens.
- The barn does not have sufficient power to allow a walk in cooler to be installed.
- The entrance and parking for CSA pick up is cramped.

Option 2

Currently both the CSA program and parks maintenance have spaces that are split between the white and red barns. If the electrical was upgraded in the white barn it would be possible to move the walk in cooler to the white barn and have all of the CSA program's needs met by the white barn.

Pros:

- This would consolidate the agricultural production barn needs into one space and reduce the need for trips between separate spaces.
- This would consolidate the parks maintenance equipment and reduce the need for trips between spaces.

Cons:

- The CSA program barn space would remain isolated from the production areas.
- Cost of installing new power to the white barn and moving the coolers.
- Continued awkward layout of white barn spaces for CSA program use.

Option 3

If alternative space can be made available for both the CSA program and other agricultural production, and for parks maintenance, The white barn could be repurposed for community programs such as seasonal festivals, educational workshops and events, and display and storage of historical agricultural equipment.

Pros:

- This opens up a large space on the farm for events that require covered space.

Cons:

- This requires new barns to be built on the farm, taking up potentially productive space.
- Cost of new construction.
- As an event space, the white barn is isolated from larger parking areas and other facilities.

Timelines

In the short term the white barn and red barn spaces will need to remain as is unless program needs change. Timelines for changes to the white barn depend on funding of construction and alternative spaces.

Agricultural Enterprise Management Options

Creating production systems for food crops at Luscher farm is not like building other kinds of park infrastructure. The initial capital investment does not need to be high, but in order to demonstrate good agricultural management of the land there does need to be strong investment in people who are knowledgeable and who have significant experience in managing the kinds of production systems that Luscher farm wants to model. As shown in the examples given in the section on Other Models to Look To, there are many forms the management could take, the following is a discussion of possible specific approaches with considerations for each.

Non-profit

Many successful models of educational farm spaces that are open to the public are run by non-profits, or are run in partnerships with non-profits.

Pros

- Membership and donation based non-profits naturally engage the community and promote their mission.
- Provides an easy platform for encouraging hands on volunteers on the farm and internships.
- Non-profits with good development programs are set up to access grants and larger donors who want to support ecological improvements and research work that can be hard to support financially on for profit farms.
- Less financial pressure on production.

Cons

- Lack of market pressures can create agricultural models that are unrealistic or not reflective of “real” farms.
- Non-profits selling produce from their operations can be seen as a threat by surrounding farm operations.
- Non-profit structures can move more slowly than for profits due to more complex management structures.

Examples from the Models section: Zenger Farm, Hidden Villa, Shelburne Farm and others.

Parks run

There are fewer examples of agricultural operations run by parks. Operations that are run directly by governmental organizations have very different decision making structures and funding streams than typical agricultural businesses which makes it hard to create demonstration models that mimic typical agricultural operations. We see these most typically with agricultural models that are intended to recreate historical agricultural operations.

Pros

- Direct control over all aspects of the operation.
- Easier integration of other parks programs into agricultural operations.
- Little to no financial pressures on production.

Cons

- Different skill sets and management approaches for public parks management can make it difficult to create and run successful agricultural enterprises.

Examples from the Models section: Deer Hollow Farm, Malabar Farm

Contracts with farm businesses

This is a model that is very common with incubator projects and land trusts. It is also the current model in use by Luscher Farm.

Pros

- Management of the space is completely taken care of by the agricultural operation.
- When used for education the agricultural projects tend to better represent actual practices for successful commercial operations.
- Helps to connect the community more directly with good agricultural operations.

Cons

- Control of the project space is limited to terms of the contract and can be harder to change on the fly.
- Short leases don't encourage longer view agricultural practices but long leases can limit flexibility for future changes from the parks side.

Examples from the Models section: Intervale, Broadturn Farm, Metro Open Spaces

Current typical farm lease rates in the region vary by lease type, land conditions, water availability and included outbuildings. Friends of Family Farmers (friendsoffamilyfarmers.org) has a good four page write up on considerations within agricultural land leases.

Marketing Options for Farm Products

In addition to the management of the agricultural enterprises there will inevitably be product that needs to be distributed. The type of product and management choices will partially dictate the market, but certain markets are more able to work towards educational and community outreach goals. For this reason a short discussion on market types for agricultural products follows the management structures discussion.

Wholesale and Processors

This is the least management intensive form of marketing. Typically a farm will sell all of their product to a broker or reseller or to a processor. This is common for farms with little diversity, but high production of commodity crops, or even specialty crops. The price received is low but so is the amount of work required to market the crop. For wholesale and processing there are usually very specific size, cosmetic and/or packaging requirements. Farms that sell into wholesale markets rely on large scale and highly refined, usually highly mechanized, systems to keep production costs low. It is unlikely with the scale of Luscher farm that the farm would ever produce enough product to enter the wholesale market in any significant way. Additionally, there would be no added benefits of wholesaling produce in terms of connection to the larger community or even much in the way of community education.

Direct Market

Direct marketing comes in many forms and is the opposite of wholesale in many ways. The three most common forms of direct marketing are farm stands, farmers markets and CSA (Community Supported Agriculture).

Farm Stands

Farm stands are typically allowed by right on EFU land under Oregon land use law. These are essentially retail stands intended to allow farmers to sell product directly off of the farm and can not be used for public gatherings or banquets. Self service farm stands can be very simple with low management costs, but the risk in populated areas for theft are high. Staffing a farm stand requires sales of enough volume of product to pay for the stand and the staffing, similar to Farmers Market sales, although without the same need to travel to the market, set up and break down.

Farmers Markets

Farmers markets allow farms to have a retail presence in communities that are within reasonable driving distance of the farm and to receive full retail price. They do not require the full investment that establishing an in town retail establishment would require, but they do require significant investment of time and resources. Usually farmers markets are weekly during the harvest season and require one or more employees to set up, sell and break down the stand. Additionally, there is no guarantee of selling all of the product brought to a market. Farmers markets typically have the advantage of not having specific cosmetic, size or packing requirements for produce (although meat, dairy and eggs do have specific requirements).

Farmers markets allow some direct connection to the farm for consumers, but usually only at the market itself. They can provide a good remote outlet and marketing face for the farm that encourages consumers to visit the farm at other times of year.

Direct to Retail

Direct to retail comes in two primary forms: direct to groceries and direct to restaurants. For direct sales to groceries the prices need to be low enough that the grocers can mark up the product and still make a profit. Frequently they require a standard wholesale pack, but many smaller grocers are more interested in direct relationships with the local farms that can be used for their own marketing, and in the quality and special varieties of produce that are not available through typical wholesale channels.

Direct to restaurant sales vary depending on the kitchen, and may also include catering services and institutional caterers, such as school kitchens. Higher end restaurants tend to be small and to buy in small quantities with the sole goal of quality so prices tend to match retail for those outlets. The advantage to the grower is a relationship with a regular buyer who purchases more than the typical family. Larger institutions may be more like direct to grocer accounts, requiring lower prices but ordering larger quantities than a smaller restaurants, although still less than large wholesale buyers or processors.

Both of these outlets run the range in terms of community outreach and educational value. With a good relationship between the farm and a retail outlet the presence of the farm and the farm's goals could be featured by the market. Similarly chefs and institutional kitchens with high profiles can help spread the word in the community about your project, and sometimes have important contacts in the community that are useful.

Community Supported Agriculture (CSA)

CSA itself comes in many forms but the basic elements are consumers who directly connect with a farm to purchase the product and support the farm. Like farmers markets there are no specific cosmetic, size or packing requirements and there is significant cost involved in the marketing of the produce. Unlike farmers market a significant portion of the marketing expenses are incurred during the off season when there is less field work happening, and much of the income comes at the beginning of the season easing problems with cash flow, and essentially providing a direct operating loan for production. Additionally CSA typically encourages more direct connection to the farm through regular visits to the farm, on farm events, and, if nothing else, the seasonal harvests of one farm and the information about the farm and the season that the produce naturally imparts. This intrinsic community focus makes CSA a common approach for non-profit educational farms wanting to create more connection between the surrounding community and their farm programs, and easily complements other educational programs related to agriculture.

Below is a table with a summary of some of the features of different markets and a couple of examples of models that use each type.

Models	Connection to Community	Prices	Diversity of Products	Examples from Models
Wholesale	Low	Low	Low	Metro, Intervale
Processors	Low	Low	Low	Metro, Intervale
Farm Stand	High	High	High	Fairview Gardens, Shelburne
Farmers Market	Med/High	High	High	Zenger Farm, Food Works
Direct to Retail	Med/Low	Med	Med	Metro, Intervale
CSA	High	High	High	Hidden Villa, Intervale

Integrating Non-Agricultural Uses

Walking paths

Walking paths, as identified in the LAMP, are an obvious way to serve the public and to give them ways to observe the agricultural operations through the seasons at Luscher Farm. Good signage and defined pathways would help to keep the public out of production fields. Good signage could also serve the purpose of educating the public about the agricultural operations and the ecosystem services that the farm provides the community.

Pathways would fit most easily on the borders of annual production fields and orchard plantings, and on the edges of pastures, next to fence lines. In the case of widely spaced fruit trees it would also be possible for paths to cut through orchard spaces and during most times of year orchard floors could potentially be open for the public to wander through. Good tree signs (see appendix 5) could be used to make areas like this very educational.

Fairview Gardens and other public farms have done an excellent job of setting up self guided tours, complete with maps and excellent signage that is changeable through the seasons to represent what is happening in the fields at a particular time.

Path surfaces should vary depending on the location, seasonality and quantity of traffic expected. Paths that are close to fields are usually best kept in sod which can be maintained with regular mowing. Mowed sod pathways are a permeable surface which does not shed water into adjacent fields. They are also good at absorbing soil from field tools and machinery, which tends to be deposited as tools and machines enter and exit the fields. Mowed sod pathways are extremely inexpensive to develop and thus are also very flexible in their placement and can usually be easily moved or repurposed if needed.

For paths that need to be used in the wet season, see extremely heavy traffic, or will be shared with bicycles, compacted cinder or paved surfaces will be better than sod. These are more expensive to install and to move if needed. They still require mowing along edges and the edges can be more difficult to maintain than simple mowed sod. Care needs to be taken to not place agricultural fields too close to paved surfaces as plowing and tilling can undermine the foundations of the pathways and runoff from paved surfaces can cause drainage and erosion problems in fields.

Pasture areas where grazing is to be considered will likely need to have hard fencing in order to keep animals contained and the public out. These fence lines, if not maintained will develop hedgerows and would also be excellent places to have walking paths. In this case the pathways would serve to facilitate fence maintenance and hedgerow maintenance.

Educational Programs

There is a broad range of possibilities for educational programming around agricultural enterprises at Luscher, and many are shown as examples in the lists of potential models earlier in this document. Some programs already exist on the farm but there is likely room for expansion. Typical educational programs for kids include school tours, summer camps and can also include family workshops, tours and weekend events. Education programs often use farms as ways to connect urban and suburban kids to agriculture and where their food comes from, and to teach about environmental science topics. It is also possible to use the farm as a backdrop for writing and visual arts education, or even an entry point for history or social studies programs.

There are a number of ways to use the farm for educational programs for kids but commonly farms are seen as good places for hands on learning. Depending on the age of the kids this can range from simply digging in the dirt, to doing regular chores. Sensory experiences like taking produce from the fields through preparation of food and tasting are also common approaches.

For adults, self-guided tours, as mentioned above in the walking paths section, are one of the simplest educational programs. Self guided tours that are frequently updated to reflect the seasonality of the farming can add another dimension and give the community a reason to take the tour more than once. Guided tours and seasonal events like harvest parties and farm clean up days can also be educational events for folks of all ages.

Older students and adults often seek out on farm training in the forms of workshops and internships. Workshops typically use the farm as a backdrop for teaching specific methods or tasks, or to give a quick overview of the full range of the farm practices. Internships are for longer periods and typically integrate significant hands on work with some classroom and one-on-one learning. Internships can be

very short, on the order of a month or several months, or may last a full season or even multiple seasons.

For all of these educational programs to be effective, informative and to integrate well into the farm there needs to be good advance planning and coordination between production managers and educational programmers. Goals for production and for education need to be clearly discussed in advance and coordinated. Increasing education on the farm will almost always cause a reduction in productivity of the farm in the sense that it will cut into time for crew to work on maximizing production, or it will take space that could otherwise be used for production. These losses can be easily made up for by the resulting educational value, but this needs to be acknowledged in advance in order to not cause unnecessary stress or unexpected additional work.

Community programs

Aside from strictly educational programs, there is a long tradition of seasonal community celebrations at farms: harvest and planting festivals, and celebrations of regional specialty foods and agricultural products. These events are a great way for the community to connect with the farm, and at Luscher in particular, to connect the larger community with the aspects of the park that set it aside from other parks in the city and the region. It is also a way for the community to express appreciation for the agriculture of the region and at Luscher specifically.

Creative thinking around the spaces and products provided by the agriculture at Luscher could inspire more community programs loosely connected to the agriculture. These might be in the areas of recreation and fitness or, visual, literary, theatrical and musical arts. From an agricultural perspective it is always best when these can be tied into the agricultural enterprises on the farm to inspire more connection to the primary use of the space.

Conclusions

This document provides a range of specific options for increasing agricultural production at Luscher farm in ways that have good potential for highlighting the public nature of the farm. It takes into account the unique geographical features and the current programs.

Luscher farm is well positioned to expand its already significant agricultural programs and at the same time to increase opportunities for the larger community to interface with the park and agricultural programs.

Luscher is not unique in its status as a public space with agricultural enterprises that are integrated into programs that benefit the larger community through both produce and educational programs. It is unique in its specific location and circumstances, but there are many models in the region and nationally to take ideas from and to learn lessons about program development from.

Due to the space and terrain limitations of the project the best opportunities for Luscher, from a triple bottom line, sustainable agriculture perspective, are probably from a single enterprise managing production, or a small number of well coordinated enterprises.

The public nature of the farm makes it particularly suited to integrating educational programs of all sorts. There is also good potential for creating community events that connect the larger public to the agricultural nature of the spaces at Luscher.

Most of these programs will take time to implement, but it is possible to imagine the farm growing into its new spaces within the next three to five years and for programs to continue to develop and evolve well past that point. While this document does not give specific, detailed directions for how to implement these programs, it does provide a roadmap showing the variety of ways the farm can move its agricultural goals forward and suggests the most appropriate destinations to move toward.

Appendices

Appendix 1: Appropriate Annual Crops

The upper Willamette Valley has an excellent growing climate for many annual and biennial fruits and vegetables. A lack of real heat in most summers and a relatively short hot season means there are many heat loving vegetables that are marginal or require assistance from additional protection like plastic tunnels in order to be grown at all, let alone profitably. Lack of light and very wet soil conditions limit winter production as much as cold temperatures do. Year round production of crops is possible with proper variety selection. The area is particularly suited to growing cool season annuals and biennials like brassicas, crops that don't like excessive heat and appreciate moist, cool conditions to develop flavor.

The following is a list of crops that are suited to the region for growing in the field. Depending on seasonal variations, production and marketing techniques and varietal selection they will be more or less successful. This list is not exhaustive but represents the most commonly grown and marketed crops in the area.

Crops that can do well without added protection	season
Artichoke	Summer
Asparagus	Spring (perennial)
Beans, fresh	Summer
Beets	Summer through Fall
Broccoli	Spring and Fall
Brussels Sprouts	Fall and Winter
Cabbage	Summer through Winter
Carrots	Year round
Corn, Sweet	Summer
Chicories	Spring, Fall and Winter
Fennel	Spring through Fall
Greens	Year round
Kale	Spring, Fall and Winter
Leeks	Year round
Lettuce	Spring, Summer and Fall
Onions	Summer
Parsnips	Fall and winter
Peas	Spring and Fall
Potatoes	Summer and Fall
Pumpkins	Fall
Rutabaga	Fall and Winter
Spinach	Spring and Fall
Summer Squash	Summer
Winter Squash	Fall and Winter
Swiss Chard	Spring through Fall
Tomatoes	Summer
Turnips	Year round

Culinary Herbs	Year round (wide mix and variation)
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The following crops are grown in the area but tend to prefer more heat than we naturally have in a summer. For that reason they are marked as marginal, or needing extra protection, usually in the form of plastic tunnels.

Crops that are marginal or need added protection	season
Cucumbers	Summer
Eggplant	Spring (perennial)
Melons	Late Summer
Peppers	Summer through Fall
Sweet Potatoes	Fall
Tomatoes	Summer into Fall
Watermelon	Late Summer

The following are crops that are not typically grown on a small scale (anywhere) and are not grown in large quantities in this area. There are a number of growers starting to experiment with specialty varieties for certain markets and they have good potential for educational activities with both kids and adults.

Other crops to consider	season
Small Grains (e.g. wheat, barley)	Summer
Corn, dry	Fall
Beans, dry	Late Summer into Fall

Appendix 2: Appropriate Fruit

The following is a mix of apple cultivars that were available to settlers of the Willamette Valley in the late 1800s, from historic nurseries of the area, such as the Luelling Nursery of Milwaukie, OR, and the Hanford Nursery of eastern WA. These are cultivars that are still found in historic pioneer orchards across the region, surviving and thriving in our climate.

Apples		Rootstock
Summer Harvest		
Red Astrachan	M111	Russian import to USA (via Sweden) in 1835. Red skin, tart, acidic, flavorful. Drying, pies, eating. July-August.
Gravenstein	M7	Danish seedling apple from 1669, brought to California in the 19th century by Russian fur traders. Green/red striped skin; crisp, tart, flavorful. Eating, juice, cooking. August.
Duchess of Oldenburg	M111	Russian. Cold-hardy, scab resistant. Sweet, tart, highly aromatic. Juice, cooking. August.

Apples		Rootstock
Fall Harvest		
Chenango Strawberry	M111	New York, early 1800s. Thick-skinned, aromatic, juicy. Cooking. August/September.
Maiden Blush	M111	New York, 1817. Yellow skin, white flesh. Tender, juicy, acid, flavorful. Eating, juice, cooking. August/September.
Ortley	M111	New Jersey, 1825. Green skin, cream flesh. Crisp, juicy, flavorful. Excellent eating, juice, cooking. September.
Snow	M111	Eastern Canada, 1739. An excellent parent of MacIntosh. Disease resistant. Red skin, white flesh. Tender, juicy, spicy/aromatic, flavorful. Eating, juice, cooking. September.

Twenty Ounce	M111	New York, early 1800s. Named for its ability to produce enormous apples. Streaked red/yellow skin, white flesh. Firm, high-quality flavors. Cooking, juice. September.
Wealthy	M111	Minnesota, 1868. Some disease resistance. Sweet/tart, vinous, distinctive flavors. Eating, cooking. September.

Apples	Rootstock	
Winter Harvest		
Baldwin	M7	Massachusetts, 1784. Renowned pie and cider apple of New England. Sweet, crisp flesh. Cooking, eating, juice, hard cider. October.
Esopus Spitzenberg	M7	New York, late 1700s. Made famous by Thomas Jefferson's interest. Orange/red skin. Hard, crisp, juicy, yellow flesh. Complex, aromatic, distinctive sweet/tart flavor. Excellent eating, juice. September/October.
Golden Russet	M111	New York early 1800s. Some disease resistance. Renowned hard cider apple. Golden-bronze skin. Crisp, fine yellow flesh. High sugar/acid/tannin levels make distinct, rich flavor. Juice, drying, eating. September/October.
King (of Thompkins County)	M7	New Jersey, 1804. Greasy, streaked yellow/red skin. Yellow, crisp, tender flesh. Sweet, subacid, excellent flavor. Eating, cooking, juice. September/October.
Newtown Pippin	M7	New York, mid 1700s. Green skin. Crisp, juicy flesh. Excellent sweet/tart, aromatic flavor improves in storage. Eating, cooking, juice, hard cider. October/November, storage into February.

Northern Spy	M7	New York, 1800. Classic winter dessert apple. Green skin flushes scarlet. Tender, crisp, juicy, off-white flesh. Sweet/tart, aromatic flavors. Excellent eating, pies, juice. October/November, storage into January.
Rhode Island Greening	M7	Rhode Island, 1650. Green skin. Firm, crisp, juicy, yellow flesh. Refreshing, unique sweet/tart flavor. Cooking, juice. October/November, storage until March.
Winesap	M111	New Jersey, 1800. Deep red skin. Crisp, juicy, yellow flesh. Named for spicy, wine-like aroma and flavors. High sugar and acid content. Excellent eating, juice. October.
Arkansas Black	M111	Arkansas, 1850s. Reddish-black skin. Crisp, coarse, greenish-white flesh. Sharp, sweet/tart flavors improve in storage. Cooking, juice, hard cider. October/November, storage into February.
Fallawater	M111	Pennsylvania, mid 1800s. Some disease resistance. Green/yellow skin. Firm, juicy, crisp, off-white flesh. Subacid, mildly sweet flavor. Cooking, juice. October.
Jonathan	M111	New York, late 1700s. Red skin. Fine-textured, juicy, off-white flesh. Sprightly, subacid flavor. Eating, baking, freezing. October/November, with storage into February.
Porter	M111	Massachusetts, 1840. Yellow skin. Tender, sweet, juicy flesh. Eating, canning, cooking. Holds its shape when cooked. October, with storage into January.
Rome Beauty	M111	Ohio, 1820. Solid red skin. Crisp, juicy, white flesh. Tangy, sweet/tart flavor. Cooking, juice, eating. Holds its shape when cooked. October/November, with storage into January.

Winter Banana	M111	Indiana, 1876. Yellow skin blushed orange/red. Firm, coarse, tender, off-white flesh. Aromatic, sweet, subacid flavor. Eating, juice. October.
Wolf River	M7	Wisconsin, 1875. Large; pale red flushed over yellow skin. Juicy, tender, white flesh. Cooking. October.

The following is a selection of the best pear cultivars brought to Oregon in 1850 by Henderson Luelling, who started the orchard industry in Oregon with his Milwaukie nursery. Listed in order of ripening.

Pears	Rootstock	
Clapp Favorite	OHxF 333	Massachusetts, 1860. Green skin. Fine, juicy melting flesh. Sweet, aromatic flavor. August, before Bartlett.
Bartlett (William Bon Creti�n)	OHxF 333	England, 1700. Yellow skin. Juicy, tender, smooth, melting white flesh. Sweet, musky, slightly tart flavor. Excellent canning, eating, cooking. August.
White Doyenne	OHxF 333	European, pre-1600. Brought to America by French Huguenots in late 1600s. Pale green/yellow, russeted skin. Tender, fine, buttery, melting flesh. Sweet, rich, aromatic flavor. Finest eating. September.
Seckel	OHxF 333	Pennsylvania, 1790. Small fruits with reddish-brown russet skin. Sweet, tender, creamy-white flesh. Excellent cooking, canning, eating. September.
Vicar of Winkfield (De Cur�)	OHxF 333	France, 1760. Thick, green-yellow skin. Firm, granular, juicy flesh. Somewhat sweet, astringent flavor. Cooking. November, with storage into January.
Pound	OHxF 333	England, 1690. Enormous, 2-3 pound fruits. Green/yellow skin. Coarse, grainy flesh turns pink when cooked. Subacid flavor. Cooking. November, with storage into January.

The following is a selection of the best of the cherry cultivars from the Luelling Nursery: two brought west in 1850 by H. Luelling, three selected from seedlings at the nursery by Seth Luelling in the late 1800s.

Cherries	Rootstock	
Black Tartarian	Colt	Russian, 1700s. Sweet, dark red, juicy, soft. Rich, berry flavors. May/June.
Bing	Colt	Oregon, 1870. Sweet, dark red/black. Juicy, firm. June.
Black Republican	Colt	Oregon, 1860. Sweet, dark red-black, "black cherry" flavors hold up in cooking. June/July.
Royal Anne (Napolean)	Colt	Europe, 1700s. Sweet. Yellow skin with red blush. June/July.
Lambert	Colt	Oregon, late 1800s. Sweet. Firm, juicy red flesh. June/July.

The following is a selection of the most productive cultivars of plums that were available to Oregon settlers in the late 1800s.

Plums	Rootstock	
Bavay's Green Gage	St. Julian A	Meaty, juicy, sweet and flavorful. Amber skin and flesh. Free stone. Eating, canning. Mid-season.
Jefferson	St. Julian A	Meaty, juicy, sweet, rich flavors. Yellow skin, orange flesh. Free stone. Eating, canning, cooking. Mid-season.
Italian Prune	St. Julian A	Classic drying prune. Meaty, sweet. Purple skin, yellow flesh. Free stone. Mid-season.

Appendix 3: Appropriate Animals

Farm livestock breed selection in the late 1800's Willamette Valley was heavily influenced by the European settlers. It was much easier to deal with a known animal breed and its characteristics than to start anew with an unknown livestock breed. Many times purebred males were purchased and shared with the surrounding community; each farm shared in the cost and maintenance which spread the cost over each farm and allowed for the purchase of a better grade of breeding animal.

Below are lists of breeds appropriate to the area by animal type with uses listed. Note that many breeds common during the late 19th and early 20th century are still common today.

Poultry

Dominique	Eggs and meat
Buff Orpington	Eggs and meat
Barred Plymouth Rock	Eggs and meat

Turkey

Sheffield Bronze	Meat
White Holland	Meat
Naragansett	Meat
Bourbon Red	Meat
Slate	Meat
Black	Meat
Bronze	Meat

Duck

Aylesbury	Meat
Muscovy	Meat
Cayuga	Meat
Rouen	Meat
Khaki Campbell	Eggs and meat
Indian Runner	Eggs

Sheep

Columbia	Wool and meat
Lincoln	Wool and meat
Rambouillet	Wool and meat
Suffolk	Wool and meat

Hogs

Tamworth	Meat, lard, foraging ability
Hereford	Meat, lard, foraging ability
Duroc	Meat, lard, foraging ability
Gloucestershire Old Spot	Meat, lard, foraging ability
Large Black	Meat, lard, foraging ability
Hampshire	Meat, lard, foraging ability

Cattle

Holstein-Friesian	Dairy
Brown Swiss	Dairy
Guernsey	Dairy
Jersey	Dairy
Ayrshire	Dairy
Milking Shorthorn (Durham)	Dairy
Aberdeen-Angus	Beef
Hereford	Beef
Shorthorn (Durham)	Beef
Devon or Milking Devon	Milk, meat, draft

Horses

Percheron	Draft
Belgian	Draft
Suffolk Punch	Draft
Clydesdale	Draft
Shire	Draft
Grade horses of all types	Light draft, saddle, transportation

Appendix 4: Hedgerows for Animals

The following is a list of dual purpose trees and shrubs that can provide browse for livestock, nuts or fruits for human consumption or medicine, wood products such as firewood or mulch materials, windbreaks for crops or orchards, and habitat for wildlife.

Dual Purpose Trees and Shrubs

Chestnut *Castanea sp*
Hazel *Corylus*
Hawthorn *Crataegus sp*
Cascara *Rhamnus purshian*
Apple *Malus*
Pear *Pyrus*
Plum *Prunus*

The following are Native trees that are suitable for browse, and are low maintenance.

Native Trees

Big Leaf Maple *Acer macrophyllum*
Vine Maple *Acer circinatum*
Red Alder *Alnus rubra*

Appendix 5: The Ultimate Tree Tag!

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Long-lasting, high quality tags are commercially available for nursery, forestry, botanic garden, and museum applications with costs beginning around \$3.00 each and more durable tags in the \$5.00 to \$10.00 range. These costs are prohibitive for labeling the thousands of long-lived woody tree and shrub accessions conserved in many NPGS field collections. Lower cost alternatives were investigated that could be fastened directly to the trunks of fruit, nut and woody ornamental trees, or fastened to a wooden or composite stake for labeling shrubs and perennials.

A durable, attractive and functional high density polyethylene (HDPE) tag can be easily manufactured for direct mounting onto a tree trunk for a total cost of less than \$0.70 each. Tags can be mounted onto a wooden or composite stake for young trees, and moved on the tree trunk after 2-3 years.

“Ultimate” Tree Tag – 4” x 6” white HDPE tag with 3 1/3” x 4” printed label, mounted to tree trunk with stainless steel screw and nylon spacer.

Advantages: attractive, long-lasting, inexpensive, white color allows option of using clear labels instead of more expensive “WeatherProof” labels; HDPE easily cut with table saw/chop saw; extremely durable, UV-stable, rot, rust, moisture and corrosion proof; Avery label adhesive bonds well to tag

Sources and Costs

item	source	price	cost per tag*
prototype 3: white, high density polyethylene (PolyMax®) 1/8”	FarmTek/Growers Supply Dyersville, IA http://www.farmtek.com	\$46.15/4' x 8' sheet (+ shipping) (192 tags/sheet)	\$0.30 (includes shipping)
Avery 5524 White Weatherproof Shipping Labels	Staples	\$50.99/50 sheets (6 labels/sheet)	\$0.17
Fasteners			
screws: 8 x 2 (2 inch) stainless steel, hex head	Fastenal, Winona MN http://www.fastenal.com	\$120/1000	\$0.12
spacers: 3/8 x 1 #8 nylon	Fastenal, Winona MN http://www.fastenal.com	\$71.20/1000	\$0.07

* cost per 4” x 6” tag