

Larimer County, Colorado
Land Evaluation and Site Assessment System
(LESA)
1.0

August 2001¹

Funding for this project was provided by:

American Farmland Trust
Colorado State University Cooperative Extension, Larimer County
Great Outdoors Colorado Trust Fund
Larimer County Open Lands Program
The Stryker-Short Foundation
The William and Flora Hewlett Foundation

Handbook prepared by:

American Farmland Trust
Colorado Field Office
P.O. Box 1417, 236 Linden Street
Fort Collins, Colorado 80524

and

Colorado State University Cooperative Extension
Larimer County Office
1525 Blue Spruce Drive
Fort Collins, Colorado 80524

¹ This LESA handbook is the result of work completed in August 2001. Periodic reviews are necessary to ensure that the Larimer County LESA process remains current.

Larimer County, Colorado

Land Evaluation and Site Assessment (LESA) System 1.0

LESA's role is to provide systematic and objective procedures to evaluate sites within Larimer County for agricultural importance.

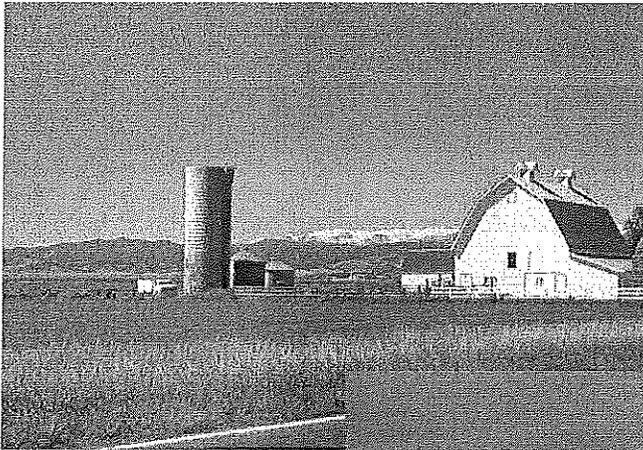


Table of Contents

TABLE OF CONTENTS	I
LIST OF TABLES	III
LIST OF FIGURES	III
LIST OF ABBREVIATIONS.....	III
ACKNOWLEDGEMENTS	IV
BACKGROUND.....	1
LARIMER COUNTY AGRICULTURE.....	1
INTRODUCTION OF LESA	2
KEY ELEMENTS OF LESA SYSTEM DEVELOPMENT	3
LESA COMMITTEE.....	3
FOCUS STATEMENT.....	3
LESA STRUCTURE	3
FACTOR SELECTION	4
DATA SOURCES	4
FACTOR WEIGHTING.....	4
FIELD TESTING	4
FORMULATING LARIMER COUNTY’S LESA SYSTEM.....	5
LOCAL LESA COMMITTEE.....	6
USING THE LARIMER COUNTY LESA RATING SYSTEM.....	7
LESA RATING PROCESS	7
LAND EVALUATION (LE) COMPONENT.....	8
SITE ASSESSMENT (SA) COMPONENT	9
DESCRIPTIONS OF SA FACTORS	10
FACTOR WEIGHTING	17
LARIMER COUNTY LESA SUMMARY SCORESHEET	18
RECOMMENDATIONS TO USERS	19
COMPARING RANGELAND AND CROPLAND.....	19
CONTACTS FOR MORE INFORMATION	20
REFERENCES	21
APPENDIX A – SOIL CAPABILITY CLASSES FOR LARIMER COUNTY.....	22
APPENDIX B – LESA SCORECARD AND SUMMARY SCORESHEET.....	26
I. LAND EVALUATION (LE) COMPONENT.....	26
II. SITE ASSESSMENT (SA) COMPONENT.....	27
LARIMER COUNTY LESA SUMMARY SCORESHEET	30

APPENDIX C – SAMPLE LE RATING31
APPENDIX D – COLORADO STATE NOXIOUS WEED LIST32
APPENDIX E – MAP OF LARIMER COUNTY33

List of Tables

<i>No.</i>	<i>Title</i>	<i>Page No.</i>
1	LESA Steering Committee.....	6
2	Acres of Larimer County Soils in NRCS Capability Classes.....	8
3	LE Values for Larimer County Soil Capability Classes	9
4	Farm Size Scaling	11
5	Water Availability Scaling	12
6	Distance to Annexed Boundary Scaling	13
7	Habitat Value Scaling.....	14
8	Strategic Value Scaling.....	14
9	Visual/Scenic Value Scaling	15
10	Cultural/Historical Value Scaling	16
11	LESA Factor Weightings	17
12	Sample Summary Scoresheet Completed.....	18
13	Thresholds for Comparing Cropland and Rangeland	19

List of Figures

<i>No.</i>	<i>Title</i>	<i>Page No.</i>
1	Market Value of Agricultural Products Produced in Larimer County, 1997.....	1
2	Farm Size Distribution in Larimer County, 1997.....	2
3	Larimer County LESA Development Process	5

List of Abbreviations

AFT American Farmland Trust	LESA Land Evaluation and Site Assessment
CASS Colorado Agricultural Statistics Service	NRCS Natural Resources Conservation Service
CSU Colorado State University	USDA United States Department of Agriculture

Acknowledgements

The creation of the Larimer County Land Evaluation and Site Assessment (LESA) system would not have been possible without the time and assistance of our steering committee, all of whom volunteered many hours of personal time. Committee members include: Todd Boldt, K-Lynn Cameron, John Fusaro, Charlie Gindler, Lew Grant, Brian Hayes, Ray Herrmann, Nancy Howard, Minerva Lee, Larry Lempka, Karen Mancini, Ernie Marx, Sean Muller, Mike Petersen, Jim Reidhead, Kathay Rennels, Andrew Seidl, David Sitzman, John Stokes, Pat Stratton, Alisa Wade, Maxine Weaver and John Worthington. Their expertise molded the Larimer County LESA system.

Todd Boldt and John Fusaro of the Natural Resources Conservation Service provided data on soils in the county and guidance in developing the LE component, as well as substantial geographic information systems (GIS) support.

We also extend our appreciation to Lee Nellis, of the Sonoran Institute, for sharing his knowledge of LESA through several training workshops and many consultations.

Kathay Rennels, Larimer County Commissioner, provided valuable insights and guidance from the county's perspective, allowing the committee to coordinate its activities with the county's policy-making system.

We would also like to thank Jami Daniel, American Farmland Trust (AFT) intern, who collected and analyzed all of the soil potential data, and provided much support throughout the project. Leah Burgess, AFT program assistant, collected and analyzed data on range sites and forage characteristics. Martha Sullins was instrumental in the early project development, securing funding and local and statewide support for the project. She organized the orientation workshops, and has provided planning and organizational support throughout the project. Ben Way, AFT Field Representative, served as project coordinator.

Finally, a special and sincere thanks goes to Ernie Marx of Larimer County Cooperative Extension who coordinated and facilitated the many committee meetings, developed materials, conducted statistical analyses, and served as liaison to the County Board of Commissioners. His creativity, energy and knowledge of the county played a huge role in the success of the LESA project.

American Farmland Trust welcomes any comments that may improve the usefulness of this report.

Background

Larimer County's 1997 master plan identified the preservation of agriculture as an important countywide issue. One of the master plan themes is that:

Agriculture will remain a viable long-term segment of Larimer County's economic, cultural and social fabric. The planning process shall promote the continued health of agriculture through voluntary, incentive-based programs and strategies.

Larimer County Agriculture

As of the 1997 Census of Agriculture, Larimer County had 542,000 acres in farms and ranches, representing 32% of the county's land area. Between 1978 and 1997, however, Larimer County lost over 32,000 acres of farmland (Census of Agriculture, 1978 -1997). Population growth is a driving factor behind agricultural land conversion. In fact, Larimer County's population is projected to grow from approximately 252,000 residents in 2000 to more than 379,366 by the year 2025 – an increase of 50 percent over the next 25 years (Colorado Department of Local Affairs, 2001).

There are many reasons for protecting agricultural lands. Agriculture provides food, fiber and alternative energy sources to sustain the citizens of our nation. Agricultural lands provide economic and community values that are often overlooked in discussions about land protection. Agricultural lands also comprise some of the last remaining important open spaces in Colorado. Agriculture is an important economic sector in Larimer County. In fact, agriculture and related businesses generated \$670 million dollars in sales in 1997 with farm gate sales accounting for \$100 million of this total (Figure 1). Larimer County ranked 6th in the state with a total agribusiness income of \$121 million in 1997. Agriculture also provided 5,337 jobs in the county (1997 estimates), making it the 5th top provider of agricultural employment in the state (Hine et. al, 2000).

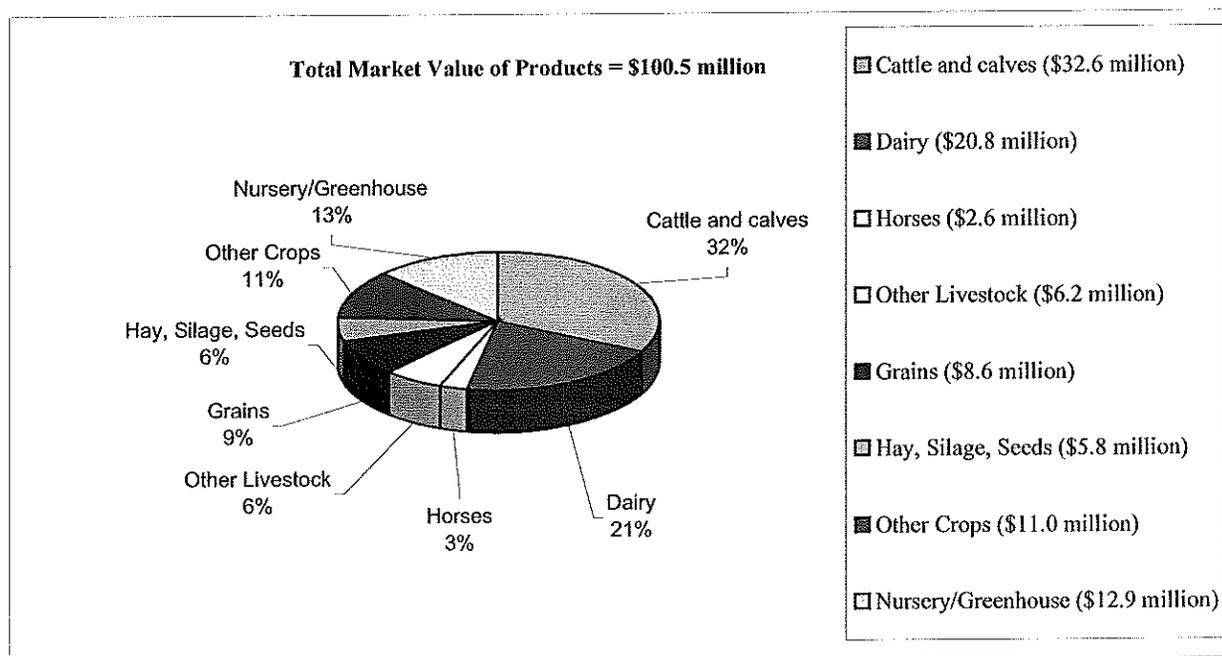


FIGURE 1. Market Value of Agricultural Products Produced in Larimer County, 1997, U.S. Census of Agriculture.

Larimer County has approximately 88,000 acres of cropland. Hay, wheat and field corn are grown on a majority of the county's cropland. Other important crops include sugar beets, dry beans, barley and vegetables.

The average farm size in Larimer County is 420 acres, a figure that steadily declined since 1974 (Colorado Agricultural Statistics Service, 2000). The largest number of farms are from 10 to 49 acres in size (Figure 2). However, most crops were harvested on farms over 260 acres in size. Overall, total acres harvested in Larimer County have been decreasing since 1969, from 116,000 to approximately 88,000 in 1999. The number of farms in the county has been increasing since 1964, as has the number of full owners (Census of Agriculture, 1964-1997). This is a result of the division of larger farms and ranches into smaller, owner-operated businesses (primarily 10 to 49 acres).

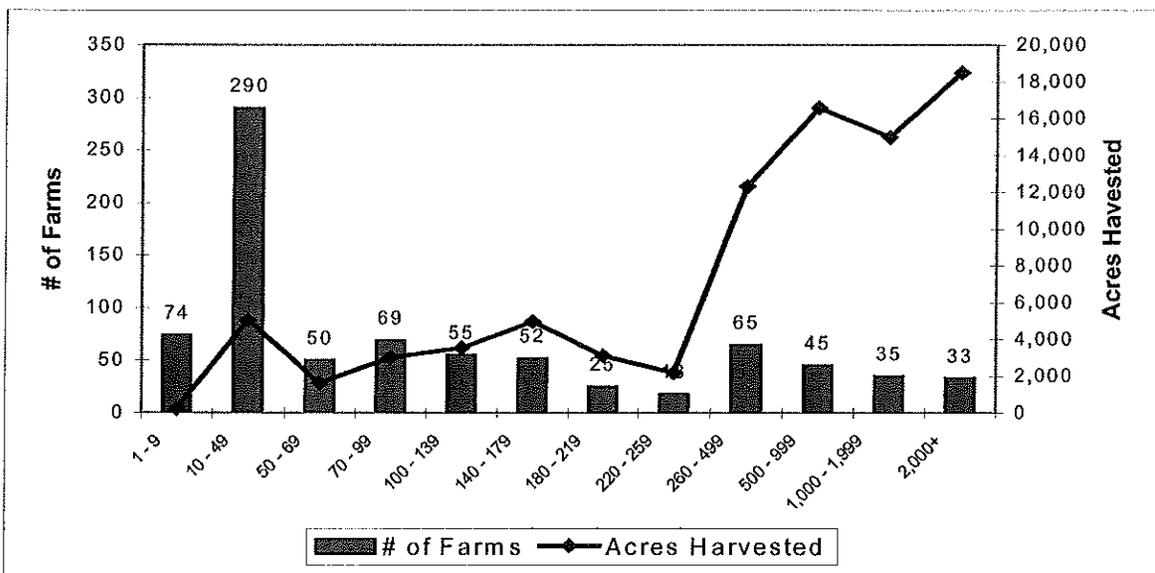


FIGURE 2. Farm Size Distribution in Larimer County, 1997, U.S. Census of Agriculture.

Introduction of LESA

In 1981, the U.S. Department of Agriculture /NRCS (then the Soil Conservation Service) designed a Land Evaluation and Site Assessment (LESA) system to determine the quality of land for agricultural uses and to assess sites or land areas for their agricultural economic viability. The system was developed to provide a tool that would meet public policy needs for analyzing farmland conversion and protection issues by combining soil survey information with socio-economic criteria. LESA is a flexible, locally-adapted and collaboratively derived system that enables communities to improve their planning and land protection decisions, use scarce conservation dollars more efficiently and better coordinate land protection opportunities with public and private partner organizations.

State or local officials can adopt the LESA system as part of their land use policy. Most often, LESA scores are used as a guide rather than a legally binding requirement. Once established, the LESA system must be periodically evaluated and updated to reflect changes in policy or

agricultural practices. *It is recommended that the system undergo a formal review after the first ten parcels are scored.*

Larimer County collaborated with American Farmland Trust (AFT) to develop a local LESA system. AFT was awarded a Great Outdoors Colorado (GOCO) planning grant in May 2000 to conduct two pilot LESA projects in Colorado and establish an information network about LESA across the state. One pilot project was conducted in Delta County; the other in Larimer County. This report is the result of the Larimer County effort and explains the Larimer County LESA system.

It is important to note that a LESA system does not establish land use policy. LESA is a tool to help implement a jurisdiction's existing land use policies. It should be used on a voluntary basis to rank parcels owned by people who are interested in exercising their right to prevent or limit development of their property. LESA may also be used as required by the Farmland Protection Policy Act when a federally funded project will have an impact on agricultural lands (e.g., to help assess alternative routes on a proposed highway project that will cross agricultural lands).

Key Elements of LESA System Development²

LESA Committee

To ensure LESA addresses local conditions and concerns, a diverse committee of community members involved with agriculture, planning, development and natural resources management designs the local LESA system. The committee is responsible for setting priorities, determining criteria, and giving direction throughout the entire LESA process.

Focus Statement

The focus of a LESA system should address the question, "What are we trying to learn from a LESA score?" This important question must be answered before beginning the LESA system development and should be frequently reviewed to ensure that the committee remains focused.

LESA Structure

LESA is a system that rates and combines soil quality and other factors to rank the relative value of an agricultural site. Soil quality factors are classified as the Land Evaluation (LE) component of LESA, while all other socio-economic factors are grouped under the Site Assessment (SA) component. Site assessment factors are further broken into three categories:

1. factors other than soil-based qualities that measure limitations on agricultural productivity;
2. factors measuring development pressure or land conversion; and
3. factors measuring other public values such as open space or wildlife habitat values.

The committee decides which factors are the most important for evaluating agricultural viability. The committee also determines how to measure each factor objectively.

² From *Land Evaluation and Site Assessment: A Guidebook for Rating Agricultural Lands*, by James R. Pease and Robert E. Coughlin, Second Edition, 1996.

Factor Selection

Each selected factor should measure a distinct quality or attribute of the site to avoid redundancy. Redundancy of LESA factors may unintentionally occur while trying to incorporate numerous issues, some of which are too closely related to provide credible information. LESA factors must be clearly defined and measurable in order to obtain consistent factor ratings and LESA scores. Ultimately, different sites with similar attributes should yield similar factor ratings. This is evaluated during the field-testing.

Data Sources

Reliable, objective and credible data are necessary to develop effective LESA scores. Data sources include state and federal agencies, local planning or development offices, agricultural censuses, and cooperative extension services. If sufficient information is not available, the LESA committee may have to modify its LESA system.

Factor Weighting

Each LESA factor is weighted based upon its relative importance. For example, if the committee determines that water availability and farm size are important factors, they must place a relative weight on each factor. Typically, weights range from 0 to 1.0, with all factor weights adding up to 1.0. A LESA score is then determined by objectively scoring each factor, multiplying by the factor weight, and summing the factor scores to obtain a final LESA rating.

Field Testing

Once factors, factor scores and weights are determined, the draft LESA system is field-tested at a variety of sites. Information gathered from field-testing allows committee members to reevaluate the LESA system. Based on field-test results, adjustments can be made to improve the LESA system.

Formulating Larimer County's LESA System

Figure 3 diagrams the development process for Larimer County's LESA system.

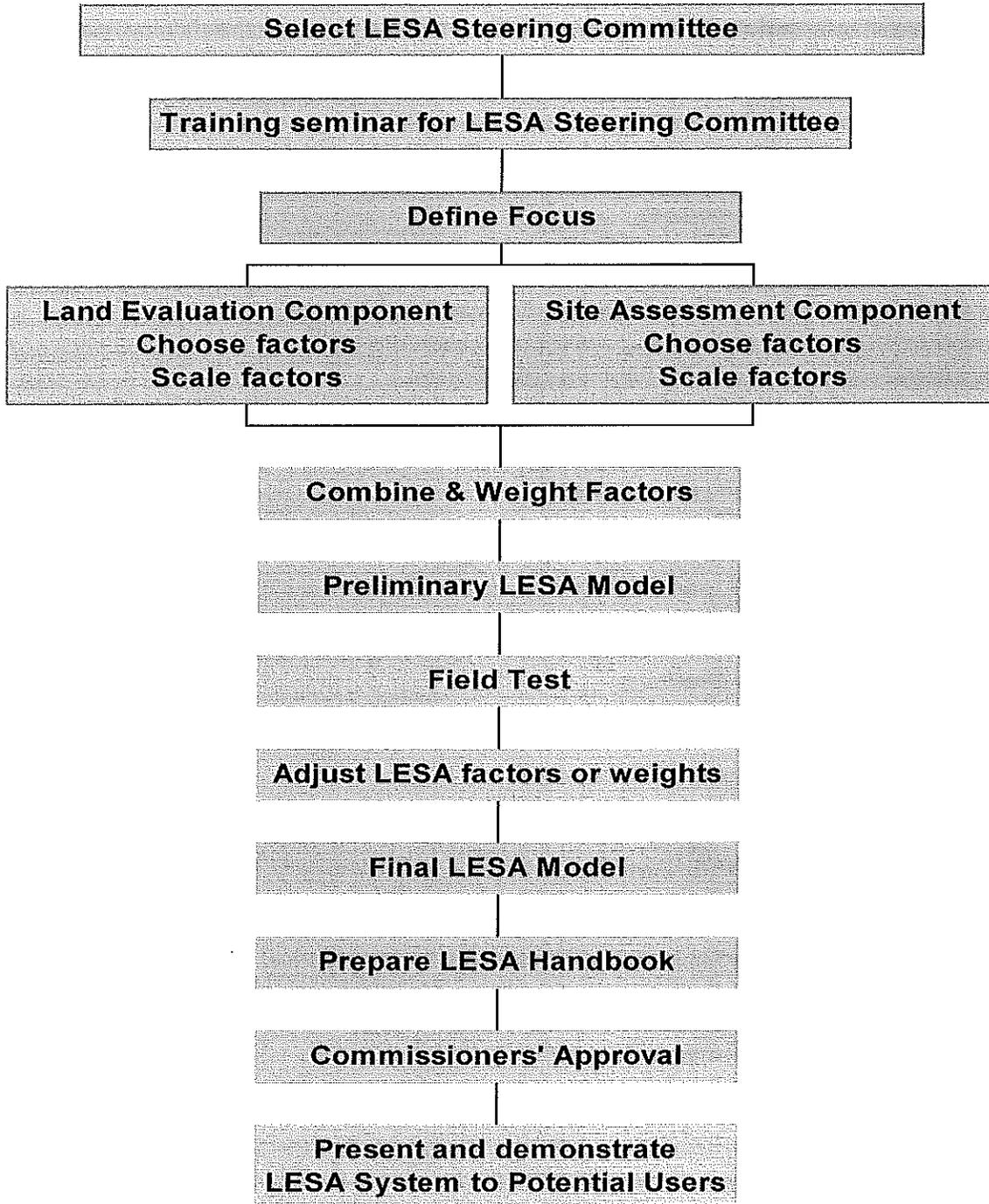


FIGURE 3. Larimer County LESA Development Process.

Local LESA Committee

Larimer County’s LESA system began with the development of a local steering committee. The role of the LESA committee was to provide local expertise to help develop a sound LESA system. The County Board of Commissioners invited 22 community members to participate on the LESA committee. The committee and AFT staff members (Table 1) attended a full-day workshop conducted by a trained LESA advisor in November 2000. Based on this training, the committee developed a county LESA system by meeting twice a month over a nine-month period, and conducting an all-day field test of the system on five sites throughout the County.

TABLE 1. LESA Steering Committee.

Name	Organization/Affiliation
Todd Boldt	Resource Conservationist, Natural Resources Conservation Service
Leah Burgess	Program Assistant, American Farmland Trust
K-Lynn Cameron	Manager, Larimer County Open Lands Program
Jami Daniel	Intern, American Farmland Trust
John Fusaro	Range Conservationist, Natural Resources Conservation Service
Charlie Gindler	Larimer County Open Lands Program
Lew Grant	Larimer County Agricultural Advisory Board/ Farmer
Brian Hayes	Natural Areas Manager, Parks and Recreation Department, City of Loveland
Ray Herrmann	Larimer County Environmental Advisory Board
Nancy Howard	Colorado Division of Wildlife
Minerva Lee	Larimer County Agricultural Advisory Board/ Farmer
Larry Lempka	Larimer County Agricultural Advisory Board/ Farmer
Karen Mancini	Environmental Planner/Wildlife Ecologist, City of Fort Collins Natural Resources Department
Ernie Marx	Agricultural Extension Agent CSU/CES Larimer County
Sean Muller	Larimer County Environmental Advisory Board
Mike Petersen	Area Soil Scientist, Natural Resources Conservation Service
Jim Reidhead	Director, Rural Land Use Center
Kathay Rennels	Larimer County Commissioner
Andrew Seidl	CSU, Department of Agricultural and Resource Economics
David Sitzman	Sitzman-Mitchell Property Management
John Stokes	The Nature Conservancy
Pat Stratton	Mountain Plains Farm Credit Services/Rancher
Alisa Wade	Executive Director, Larimer Land Trust
Benjamin Way	Field Representative, American Farmland Trust
Maxine Weaver	Attorney/Rancher
John Worthington	Rancher

The first accomplishment of the committee was to develop the following focus statement:

“LESA’s role is to provide systematic and objective procedures to evaluate sites within Larimer County for agricultural importance.”

Throughout the LESA development process, the committee regularly referred back to the focus statement for guidance.

Using the Larimer County LESA Rating System

The LESA rating process outlined in the following sections is used to determine a LESA score for each agricultural parcel under consideration. The user records individual factor scores on the LESA summary scoresheet (Appendix B) and multiplies them by the appropriate weighting. The user then subtotals the SA-1, SA-2 and SA-3 sections. The land evaluation (LE) score is then added to the three site assessment subtotals to obtain a final LESA score.

In the comments section of the summary scoresheet, the user may describe any on-farm investment that contributes to productivity (e.g. irrigation infrastructure, fencing, barns). While not part of the scoring process, these comments may be considered when trying to differentiate sites with similar LESA scores.

In forming a rating team, a minimum of seven people is recommended to obtain an official Larimer County LESA Rating. To ensure a balanced perspective, the team should consist of at least one representative from NRCS, one from Cooperative Extension, a land use planner, a developer, a natural resource specialist, and at least two agriculturalists (farmers or ranchers).

LESA Rating Process

The LESA rating process consists of the eight steps listed below.

Step 1: Identify parcel location (township, range, section) and boundaries;

Step 2: Identify type of agriculture: rangeland, cropland;

Step 3: Gather soil-based information from NRCS;

Step 4: Calculate Land Evaluation rating;

Step 5: Gather site assessment information from the appropriate sources (see page 20, *Contacts for More Information*);

Step 6: Calculate Site Assessment rating:

- identify acres suitable for agriculture
- evaluate water availability
- evaluate land condition
- determine distance to annexed boundary
- scale habitat value
- evaluate strategic value information
- rate visual/scenic value
- determine cultural/historical value

Step 7: Combine LE and SA ratings to obtain final LESA score; and

Step 8: Add comments to summary scoresheet noting any significant characteristics such as farm infrastructure (e.g. irrigation infrastructure, fencing, barns).

The following sections outline the Larimer County LESA system and provide directions for completing the scoring process.

Land Evaluation (LE) Component

The land evaluation (LE) component of LESA rates soil productivity. The LESA steering committee relied on the NRCS for data and advice regarding appropriate indicators of soil productivity. Soil capability class was selected as the basis for determining LE scores. The NRCS rates soil capability class on a scale of I to VIII. Class I soils are the most productive, with few soil properties limiting productivity. Class VIII soils have little or no productive value.

For many Larimer County soils, the NRCS has assigned both dryland and irrigated capability class ratings. For example, a Nunn clay loam is Class II irrigated and Class III dryland. This reflects the soil's increased productivity when irrigation water is applied. For the purpose of LESA, if the site under evaluation is irrigated, the irrigated capability class is used for scoring. If the site does not have irrigation water, then the dryland capability class is used.

The NRCS has mapped and assigned capability classes to approximately 960,000 acres of soils in Larimer County. Acres of soils in each capability class are shown in Table 2 below. Note that these acreages do not represent remaining agricultural land in Larimer County. A significant proportion of the best crop land (Class I – III soils) has been permanently converted to residential and commercial/industrial uses.

TABLE 2. Acres of Larimer County Soils in NRCS Capability Classes.

Capability class	Dryland acres (percent of mapped acres)	Irrigated acres (percent of mapped acres*)
I	--	16,146 (2)
II	--	120,462 (13)
III	151,185 (16)	56,047 (6)
IV	156,413 (16)	113,187 (12)
V	15,005 (2)	3,897 (0.4)
VI	216,804 (23)	20,863 (2)
VII	388,497 (40)	--
VIII	31,769 (3)	--

Source: USDA/NRCS, Larimer County Soil Survey, 1980

* irrigated acre percentages do not total 100 percent because not all soils are assigned an irrigated capability class.

LE values for Larimer County soils are summarized in Table 3. Most sites contain more than one soil type. The percentage of the site covered by each soil is multiplied by the LE value to determine a partial LE score. The partial LE scores are summed to determine the total LE score (see example in Appendix C).

TABLE 3. LE Values for Larimer County Soil Capability Classes.

Capability Class	LE value
I	100
II	90
III	70
IV	50
V	20
VI	10
VII	0

Source: Larimer County LESA Committee, July 2001.

Wet Meadow Bonus for Rangeland

Recognizing the value of wet meadows for forage production, the LESA committee awarded a bonus for wet soils on ranches. Wet soils are identified as a soil capability subclass by the NRCS and are given the subscript “w”. For example, Poudre fine sandy loam is a Class IVw soil. For a ranching operation, this soil is awarded bonus points. To calculate the bonus points for rangeland, multiply the number of acres on the site with “w” soils by 0.02 (e.g., 100 acres would earn an additional two LE points). This product, up to a maximum of 10 points, is then added to the LE score. Please refer to the LE rating example in Appendix C.

On cropland, the high water table is seen as a limitation because tillage and tractor traffic may be impeded, thus reducing crop production potential. No bonus points are awarded for wet soils on crop farms.

Soil capability class information, shown in Appendix A, is available in the NRCS Larimer County Soil Survey (USDA, 1980).

Site Assessment (SA) Component

The site assessment component of LESA rates the non-soil factors affecting a site’s relative importance for agricultural use. There are three categories of site assessment factors:

- SA-1 factors: non-soil characteristics affecting agricultural productivity;
- SA-2 factors: development pressures impacting a site’s continued agricultural use; and
- SA-3 factors: other public values of a site supporting its retention in agriculture.

The LESA Steering Committee identified three SA-1 factors, one SA-2 factor, and four SA-3 factors for use in the Larimer County system. These SA factors are:

SA-1:

- farm size
- water availability
- land condition

SA-2:

- distance to annexed boundary

SA-3:

- habitat value
- strategic value
- visual/scenic value
- cultural/historical value

Many other SA factors could have been included in the LESA system. The factors listed above are those the committee determined to be the most important with respect to Larimer County agriculture. The committee discussed many other possible factors but excluded them for a variety of reasons. For example, they were too subjective or difficult to measure, data are not available, or they were redundant with one or more selected factors. Also, factors are weighted with respect to each other. If too many factors are included the weighting becomes diluted and some factors have such minimal impact on the final score that they are meaningless in helping to differentiate parcels.

Descriptions of SA Factors

SA-1: Non-Soil Factors Affecting Agricultural Productivity

1) Farm Size

The efficiency associated with farming large acreage often results in large farms being more economically viable than small farms. Also, in areas with increasing development pressure, conflicts often arise between farm operations and neighboring land uses. Large farms have the ability to shelter a greater percentage of their operations from neighboring lands, potentially reducing conflict.

When determining farm size, only **acres suitable for agriculture** are considered. Acres of rock outcrops, home sites, or inaccessible areas are not included in farm size. Land containing farm infrastructure that is an integral part of the agricultural operation is included in farm size (e.g., barns, silos). Farm size scaling is shown in Table 4.

TABLE 4. Farm Size Scaling.

Acres suitable for agriculture	Points
3200 +	100
2720 – 3199	90
2080 – 2719	80
1440 – 2079	70
960 – 1439	60
480 – 959	50
320 – 479	40
240 – 319	30
160 – 239	20
80 – 159	10
0 – 79	0

Source: Larimer County LESA committee, July 2001.

2) Water Availability

In Larimer County, adequate and reliable irrigation water is critical for agricultural production. Adjudicated well rights are most desirable because they are not dependent on a ditch system for delivery and cannot be separated from the land. Non-tributary well rights are most desirable because they do not require stream augmentation. Owned water is more desirable than leased water because of its long-term reliability.

Recognizing that ranches have different water requirements than crop farms, a separate water availability scaling was designed for rangeland. The rangeland water availability scaling focuses on availability of stock water.

Because most ranches need to provide hay as winter feed, additional points are awarded based on the percentage of rangeland that is irrigated for forage production. The percentage of rangeland irrigated is multiplied by the appropriate *cropland* scaling criteria to calculate the additional points (see Example B below). A maximum of 100 points can be awarded for the water availability factor. Scaling for water availability is shown in Table 5.

TABLE 5. Water Availability Scaling.

Cropland	Points accorded	Rangeland	Points accorded
Adjudicated, non-tributary well	100	Adequate, well-distributed, year-round, on-site stock water	90
Adjudicated, tributary well	90		
Ditch Water		Summer only, or poorly distributed water	50
>50% owned	75		
>50% leased	25		
Dry	0	None of the above	0

Source: Larimer County LESA committee, July 2001.

Example A - Cropland

The percent of the parcel that can be irrigated by the water source is multiplied by the corresponding point rating:

40 percent of the land is irrigated with owned ditch water: $0.40 \times 75 = 30$
 60 percent is irrigated with an adjudicated non-tributary well: $0.60 \times 100 = 60$
 Total points = 90

Example B - Rangeland

Adequate, well-distributed, year-round, on-site stock water available on entire site: $1.00 \times 90 = 90.0$
 10 percent of the land is irrigated with owned ditch water: $0.10 \times 75 = 7.5$
 Total points = 97.5

3) Land Condition

As land condition declines, agricultural productivity declines and production expenses can increase. The LESA steering committee identified weeds and erosion as measurable indicators of land condition.

Weeds

Weed control is awarded 35 points. These points are earned if **less than 10% of the land has a problem infestation** of Colorado state-listed noxious weeds. A problem infestation is defined as a patch with greater than 70% density (ground cover). The most current list of Colorado noxious weeds is available from the Colorado Department of Agriculture, Division of Plant Industry (<http://www.ag.state.co.us/DPI/home.html>), found in Appendix D of this handbook. The Larimer County Weed Control District can provide weed mapping services on a fee basis (see Contacts for More Information, page 20).

Erosion

Erosion control is awarded 65 points. The points are earned if there is **no evidence of active gullying, wind erosion, eroded soil deposits or deflations**.

SA-2: Development Pressure

Agricultural viability often decreases as urban development approaches farm properties. Increased conflict between urban and rural land uses and increased property values are primary motivators for land conversion. Sites farther from annexed boundaries are considered less threatened by development pressure.

1) Distance to Annexed Boundary

Distance to annexed boundary is the shortest distance from a parcel’s edge to the nearest annexed boundary. Distances are measured directly across the landscape. Scaling for distance to annexed boundary is shown in Table 6.

TABLE 6. Distance to Annexed Boundary Scaling.

Distance to Annexed Boundary	<1/2 mile	>1/2 = 1 mile	>1 = 2 miles	>2 = 5 miles	>5 miles
Score	20	40	60	80	100

Source: Larimer County LESA committee, July 2001.

SA-3: Other public values of a site supporting its retention in agriculture:

While not a measure of a site’s agricultural productivity, SA-3 factors reflect a broader view of farmland in the landscape. Land remaining in agriculture has community and environmental values that should be recognized when considering conservation.

The LESA steering committee identified habitat, strategic value, visual/scenic value and cultural/historic value as factors to be considered when evaluating sites.

1) Habitat Value

Agricultural lands often provide habitat for animal and plant species not related to agricultural production. Plant and wildlife diversity is an indicator of a parcel’s habitat value. The presence of habitat for endangered or threatened species is also recognized as having a high public value.

The Colorado Natural Heritage Program (CNHP) has identified many species as rare or imperiled and has mapped locations where these species occur. CNHP information on habitat locations is available from the Larimer County Cooperative Extension office or can be obtained directly from the CHNP office (see page 20, Contacts for More Information). Scaling for habitat value is shown in Table 7.

TABLE 7. Habitat Value Scaling.

Criteria	Score
Site known to support a federal or state endangered or threatened plant or animal species; site known to support a plant or animal species or plant community classified by the CNHP as rare or imperiled (G1-G3 ranking)	100
Site known to support a high diversity of native plant or native animal species (100 plant or 100 animal species).	75
Site known to support a low diversity of native plant and native animal species (<100 plant and <100 animal species)	40
Land does not support meaningful numbers of plants or animals.	0

Source: Larimer County LESA committee, July 2001.

2) Strategic Value

Some sites have strategic value as components of a community separator, greenbelt or open space plan. Preserving land in agriculture can be an economical means of providing the public with open land.

Preserving land adjacent to existing protected open space effectively enlarges the open space and is considered a public benefit. Farming/ranching adjacent to protected open space can be beneficial to the agricultural producer because neighboring land use conflicts may be avoided. Scaling criteria for Strategic Value are shown in Table 8.

TABLE 8. Strategic Value Scaling.

Criteria	Score
Portion of property exists <i>within public agency plan for open space</i> (e.g., open space, separator, regional trail).	50
Property is <i>adjacent to existing permanently protected open space</i> (e.g., public park, forestland, natural area, easement).	50

Source: Larimer County LESA committee, July 2001.

3) Visual/Scenic Value

Many farms and ranches contain landscapes with scenic value for the public. Farms and ranches also provide unobstructed views of mountains and other backdrops.

Accessibility to view points is considered in determining the public value offered by the site. A scenic feature that is easily viewed by the public receives more points than a feature that is inaccessible and therefore offers less public value.

Visual/scenic scaling factors are shown in Table 9. Add the scores from each subcategory to determine the overall score for this factor.

TABLE 9. Visual/Scenic Value Scaling.

Criteria	Level of quality or importance of feature		
	Low Score	Med. Score	High Score
Scenic feature(s) on the property , including geologic formations, vegetation, water or a representative rural landscape. (Points relative to the outstanding, unique, rare or prominent quality of the feature(s))	0	25	50
Property provides an unobstructed foreground or background to scenic feature(s) off the property . (Points relative to quality of scenic feature(s) off the property)	0	15	30
Level of public accessibility to view points to see scenic feature(s) on the property, or to view points where the property provides an unobstructed foreground or background to scenic feature(s) off the property. (Points relative to the importance of the view to the community, as a whole)	0	10	20

Source: Larimer County LESA committee, July 2001.

4) Cultural/Historical Value

Farms and ranches can have cultural or historical value due to their role in our history or by being the location where events occurred before the farm or ranch was established. Features can be classified as either anthropological/archaeological or geologic/natural history.

Anthropological/archaeological features can include, but are not limited to:

- Native American sites
- burial grounds/family burial plots
- major historical trail (e.g. Overland Trail)
- centennial farms
- sites listed on Historic Register

Geologic/natural history features can include, but are not limited to:

- dinosaur tracks or fossil beds
- state record trees

Documentation of cultural/historical features requires verification by an appropriate organization. A list of organizations on page 20 may be used to verify the importance of a feature. Cultural/historical value scaling is shown in Table 10.

TABLE 10. Cultural/Historical Value Scaling.

Criteria	Score
Property contains significant features	100
Property does not contain significant features	0

Source: Larimer County LESA committee, July 2001.

Factor Weighting

Weightings of the LE and SA portions of the LESA system are shown in Table 11 below. The LE and SA portions are given equal weighting. The SA weighting is divided among the eight SA factors. The weightings reflect the LESA steering committee's evaluation of the relative importance of each factor. For example, farm size (weighting = 0.30) has a greater impact on the final LESA score than does cultural/historical value (weighting = 0.04). Table 12 contains a summary scoresheet with sample data, showing factor scores, the impact of the factor weights, and the resultant final LESA score.

TABLE 11. LESA Factor Weightings.

LESA factor	Weighting	Combined weighting	Total combined weighting
LE - Land Evaluation	1.00		
<i>LE Total Weight</i>	→	→	1.00
SA-1 - Farm size	0.30		
SA-1 - Water availability	0.20		
SA-1 - Land condition	0.10		
<i>SA-1 Sub-Total Weight</i>	→	0.60	
SA-2 - Distance to annexed boundary	0.15		
<i>SA-2 Sub-Total Weight</i>	→	0.15	
SA-3 - Habitat value	0.07		
SA-3 - Strategic value	0.10		
SA-3 - Visual/Scenic value	0.04		
SA-3 - Cultural/Historic value	0.04		
<i>SA-3 Sub-Total Weight</i>	→	0.25	
<i>Combined SA Total Weight</i>	→	→	1.00

Source: Larimer County LESA committee, July 2001.

Table 12. Sample Summary Scoresheet Completed.

LARIMER COUNTY LESA SUMMARY SCORESHEET

Name: Lisa Scoreman

Date: September 28, 2001

Site: Jones Farm

Factor	Points	Weight	Score	Totals
LE – Land Evaluation	<u>64</u>	X 1.00 =	<u>64</u>	<u>64</u>
SA1 - Farm size	<u>50</u>	X 0.30 =	<u>15</u>	
SA1 - Water availability	<u>90</u>	X 0.20 =	<u>18</u>	
SA1 - Land condition	<u>100</u>	X 0.10 =	<u>10</u>	
			SA1 Total	<u>43</u>
SA2 - Distance to annexed boundary	<u>60</u>	X 0.15 =	<u>9</u>	
			SA2 Total	<u>9</u>
SA3 - Habitat value	<u>40</u>	X 0.07 =	<u>2.8</u>	
SA3 - Strategic value	<u>50</u>	X 0.10 =	<u>5.0</u>	
SA3 - Visual/Scenic value	<u>75</u>	X 0.04 =	<u>3.0</u>	
SA3 - Cultural/Historic value	<u>0</u>	X 0.04 =	<u>0.0</u>	
			SA3 Total	<u>10.8</u>
Total LESA Score (LE + SA1 + SA2 + SA3)				<u>126.8</u>

NOTES: Describe on-farm investments contributing to productivity

Newer pole barn, 320 acres under center pivot irrigation system

Recommendations To Users

Assisting land use planning activities is the primary use of a LESA system. LESA is a tool that can be used to answer the question: Does this piece of land have significant agricultural value? The Larimer County LESA system is not intended to limit options for agricultural landowners. LESA can assist planners in making decisions when financial resources for land protection are insufficient to meet the demands of all potentially protected land or when choices need to be made regarding how land will be impacted by land use decisions.

Comparing rangeland and cropland

The Larimer County LESA system is *not* intended to compare ranch lands to crop lands; the system is most effective when comparing lands of similar use. Soils on cropland are almost always more productive than soils on rangeland. As a result, croplands tend to have a much higher LE score than rangelands. This puts rangelands at a distinct disadvantage when LESA scores are tallied.

The fact that rangeland tends to have lower LESA scores than cropland should not imply that rangeland is less important in Larimer County. The agricultural economy needs a balance of ranches and crop farms to remain sustainable.

While direct comparison of rangeland and cropland should be avoided, the comparison may be necessary in certain situations. In such cases, the thresholds shown in Table 13 should be used. These thresholds, based on LESA field test results, place sites in categories of Excellent, Good, Fair or Poor for their appropriate agricultural use. Thus, cropland with a LESA score of 120 and rangeland with a score of 90 are both rated "Good" and are considered similar.

TABLE 13. Thresholds for Comparing Cropland and Rangeland.

Rating	Cropland LESA Score	Rangeland LESA Score
Excellent	≥130	≥ 100
Good	111-129	75-99
Fair	91-110	51-74
Poor	≤ 90	≤ 50

Source: Larimer County LESA committee, July 2001.

Contacts for More Information

Basic LESA Information

Jeff Jones
American Farmland Trust
Rocky Mountain Field Office
P.O. Box 328
Palisade, Colorado 81526
907-464-4963

Ben Way
American Farmland Trust
Colorado Field Office
P.O. Box 1417
236 Linden Street
Fort Collins, Colorado 80524
970-484-8988

Ernie Marx
Colorado State University Cooperative Extension
Larimer County Office
1525 Blue Spruce Drive
Fort Collins, Colorado 80524
970-498-6003

Weed Control Information

Mike Carroll, District Manager
Larimer County Weed Control District
200 West Mountain Avenue
Fort Collins, Colorado 80521
970-498-5769

Colorado Department of Agriculture
Division of Plant Industry
700 Kipling Street
Suite 4000
Lakewood, Colorado 80215
<http://www.ag.state.co.us/DPI/home.html>
303-239-4140

Soil Information

Todd Boldt, District Conservationist
John Fusaro, Range Conservationist
Natural Resources Conservation Service
Fort Collins Field Office
2150 Centre Avenue, Suite 116
Fort Collins, Colorado 80526
970-295-5655

Strategic Value/Open Space Planning

Larimer County Parks
& Open Lands Department
1800 South County Road 31
Loveland, Colorado 80537
970-498-4570

Larimer County Planning Division
200 West Oak Street
Fort Collins, Colorado 80521
970-498-7683

Habitat Information

Colorado Natural Heritage Program
Room 254 General Services Building
Colorado State University
Fort Collins, Colorado 80523
<http://www.cnhp.colostate.edu>
970-491-1309

Cultural/Historical Value Information

Colorado Historical Society
Office of Archaeology and Historic Preservation
1300 Broadway
Denver, Colorado 80203
<http://www.coloradohistory-oahp.org>
303-866-3395

City of Fort Collins Historic Preservation Office
Advance Planning Department
Carol Tunner, Planner
Karen McWilliams, Planner
281 North College Avenue
P.O. Box 580
Fort Collins, Colorado 80522-0580
970-221-6376

Colorado Archaeological Society
Northern Colorado Chapter
Mary Jo Zeidler, Education Coordinator
P.O. Box 9554
Fort Collins, Colorado 80525

Colorado Preservation, Inc.
910 16th Street, Suite 1100
Denver, Colorado 80202
303-893-4260

References

- Colorado Agricultural Statistics Service (CASS). 2000. *Colorado Agricultural Statistics, 1994-2000*. Colorado Department of Agriculture, 645 Parfet Street, Room W201, Lakewood, Colorado.
- Colorado Department of Local Affairs (DOLA). 2001. Preliminary Population Projections for Colorado Counties, 1990-2025. Available online at: <http://www.dola.state.co.us>.
- Hine, Susan E; Elizabeth Garner, and Dana Hoag. 2000. *Colorado's Agribusiness System: Its Contribution to the State Economy in 1997*. Colorado State University, Department of Agricultural and Resource Economics, Fort Collins, Colorado.
- Larimer County Planning Division. 1997. *Larimer County Master Plan*. Fort Collins, Colorado. Available online at: http://www.co.larimer.co.us/planning/planning/master_plan/toc.htm.
- Pease, James R. and Robert E. Coughlin, 1996. *Land Evaluation and Site Assessment: A Guidebook for Rating Agricultural Lands, Second Edition*. Prepared for the U.S. Department of Agriculture's Natural Resources Conservation Service. Published by the Soil and Water Conservation Society, Ankeny, Iowa.
- Steiner, Frederick R., James R. Pease, and Robert E. Coughlin. 1994. *A Decade with LESA: The Evolution of Land Evaluation and Site Assessment*. Soil and Water Conservation Society, Ankeny, Iowa.
- U.S. Department of Agriculture. 1980. *Soil Survey Larimer County, Colorado*. U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the Colorado Agricultural Experiment Station.
- U.S. Department of Agriculture, National Agricultural Statistics Service. 1997. *Census of Agriculture, Highlights of Agriculture, Larimer County, Colorado*. Washington, D.C.

Appendix A. – Soil Capability Classes for Larimer County

Map Unit	Soil	Slope	Dryland Capability Class	Irrigated Capability Class
1	Altvan loam	0-3%	III	III
2	Altvan loam	3-9%	IV	IV
3	Altvan-Satanta loams	0-3%	III	III
4	Altvan-Satanta loams	3-9%	IV	IV
5	Aquepts, loamy	0%	Vw	IIIw
6	Aquepts, ponded	0%	VIIIw	
7	Ascalon sandy loam	0-3%	III	II
8	Ascalon sandy loam	3-5%	III	III
9	Bainville-Epping silt loams	5-20%	VI	
10	Bainville-Keith complex	2-9%	IV	
11	Baller-Carnero complex	9-35%	VII	
12	Baller-Rock outcrop complex	15-45%	VII	
13	Blackwell clay loam	0-5%	VIw	
14	Boyle gravelly sandy loam	3-9%	VII	
15	Boyle gravelly sandy loam	9-30%	VII	
16	Boyle-Ratake gravelly sandy loams	1-9%	VII	
17	Boyle-Ratake gravelly sandy loams	9-25%	VII	
18	Breece coarse sandy loam	0-3%	IV	
19	Breece coarse sandy loam	3-9%	IV	
20	Breece coarse sandy loam	9-30%	VI	
21	Carnero loam	3-9%	IV	IV
22	Caruso clay loam	0-1%	Vw	IIIw
23	Clergern fine sandy loam	2-10%	VI	
24	Connerton-Barnum complex	0-3%	IV	II
25	Connerton-Barnum complex	3-9%	VI	IV
26	Cushman fine sandy loam	0-3%	IV	III
27	Cushman fine sandy loam	3-9%	VI	IV
28	Driggs loam	0-3%	VI	VI
29	Driggs loam	3-25%	VI	
30	Elbeth-Moen loams	5-30%	VI	
31	Farnuf loam	2-10%	VI	

Map Unit	Soil	Slope	Dryland Capability Class	Irrigated Capability Class
32	Farnuf-Boyle-Rock outcrop complex	10-25%	VI	
33	Fluvaquents, nearly level		Vw	
34	Fort Collins loam	0-1%		I
35	Fort Collins loam	1-3%	IV	II
36	Fort Collins loam	3-5%	IV	III
37	Fort Collins loam	5-9%	VI	IV
38	Foxcreek loam	0-3%		VIw
39	Gapo clay loam	0-5%		VIw
40	Garrett loam	0-1%	III	II
41	Garrett loam	1-3%	III	II
42	Gravel pits		VIII	
43	Haploborolls-Rock outcrop complex	1-3%	VII	
44	Haplustolls hilly		VI	
45	Haplustolls-Rock outcrop complex		VII	
46	Harlan fine sandy loam	1-3%	III	II
47	Harlan fine sandy loam	3-9%	IV	IV
48	Heldt clay loam	0-3%	IV	III
49	Heldt clay loam	3-6%	IV	VI
50	Keith silty clay loam	0-3%	III	
51	Kildor clay loam	0-6%	VI	VI
52	Kildor-Shale outcrop complex	5-30%	VII	
53	Kim loam	1-3%	IV	II
54	Kim loam	3-5%	IV	III
55	Kim loam	5-9%	VI	IV
56	Kim-Thedalund loams	3-15%	VI	
57	Kirtley loam	3-9%	IV	IV
58	Kirtley-Purner complex	5-20%	VI	
59	LaPorte-Rock outcrop complex	3-30%	VII	
60	Larim gravelly sandy loam	5-40%	VI	
61	Larimer fine sandy loam	1-3%	IV	III
62	Larimer-Stoneham complex	3-10%	VI	IV
63	Longmont clay	0-3%	VIw	
64	Loveland clay loam	0-1%	Vw	IIIw

Map Unit	Soil	Slope	Dryland Capability Class	Irrigated Capability Class
65	Midway clay loam	5-25%	VI	
66	Minnequa silt loam	3-9%	VI	IV
67	Minnequa-LaPorte complex	3-15%	VI	
68	Miracle sandy loam	5-25%	VI	
69	Naz sandy loam	1-3%	VI	
70	Naz sandy loam	3-25%	VI	
71	Nelson fine sandy loam	3-9%	VI	IV
72	Newfork sandy loam	0-3%	VIw	
73	Nunn clay loam	0-1%	III	II
74	Nunn clay loam	1-3%	III	II
75	Nunn clay loam	3-5%	III	III
76	Nunn clay loam	1-3%		IIIw
77	Otero sandy loam	0-3%	IV	III
78	Otero sandy loam	3-5%	VI	III
79	Otero sandy loam	5-9%	VI	IV
80	Otero-Nelson sandy loam	3-25%	VI	
81	Paoli fine sandy loam	0-1%	III	II
82	Pendergrass-Rock outcrop complex	15-25%	VII	
83	Pinata-Rock outcrop complex	15-45%		IVw
84	Poudre fine sandy loam	0-1%		IVw
85	Purner fine sandy loam	1-9%	VI	
86	Purner-Rock outcrop complex	10-50%	VII	
87	Ratake-Rock outcrop complex	25-55%	VII	
88	Redfeather sandy loam	5-50%	VII	
89	Renohill clay loam	0-30%	IV	III
90	Renohill clay loam	3-9%	VI	IV
91	Renohill-Midway clay loams	3-15%	VI	
92	Riverwash		VIII	
93	Rock outcrop		VIII	
94	Satanta loam	0-1%	III	I
95	Satanta loam	1-3%	III	II
96	Satanta loam	3-5%	III	III
97	Satanta loam, gullied	3-9%	IV	

Map Unit	Soil	Slope	Dryland Capability Class	Irrigated Capability Class
98	Satanta Variant clay loam	0-3%	IV	II
99	Schofield-Redfeather-Rock outcrop complex	5-25%	VI	
100	Stoneham loam	0-1%		I
101	Stoneham loam	1-3%	IV	II
102	Stoneham loam	3-5%	IV	III
103	Stoneham loam	5-9%	VI	IV
104	Sunshine stony sandy loam	5-15%	IV	
105	Table Mountain loam	0-1%	III	I
106	Tassel sandy loam	3-25%	VI	
107	Thedalund loam	0-3%	IV	III
108	Thedalund loam	3-9%	VI	IV
109	Thiel gravelly sandy loam	5-25%	IV	
110	Tine gravelly sandy loam	0-3%	IV	
111	Tine cobbly sandy loam	15-40%	VII	
112	Trag-Moen complex	5-30%	VI	
113	Ulm clay loam	0-3%	IV	II
114	Ulm clay loam	3-5%	IV	III
115	Weld silt loam	0-3%	III	II
116	Wetmore-Boyle-Moen complex	5-40%	VII	
117	Wetmore-Boyle-Rock outcrop complex	5-60%	VII	
118	Wiley silt loam	1-3%	IV	II
119	Wiley silt loam	3-5%	IV	III

II. Site Assessment (SA) Component

1. Farm Size Scaling.

Acres suitable for agriculture	Points
3200 +	100
2720 – 3199	90
2080 – 2719	80
1440 – 2079	70
960 – 1439	60
480 – 959	50
320 – 479	40
240 – 319	30
160 – 239	20
80 – 159	10
0 – 79	0

Only acres suitable for agriculture are considered. Acres of rock outcrops, home sites, inaccessible areas, etc. are not included in farm size.

2. Water Availability Scaling.

Cropland	Points accorded	Rangeland	Points accorded
Adjudicated, non-tributary well	100	Adequate, well-distributed, year-round, on-site stock water	90
Adjudicated, tributary well	90		
Ditch Water		Summer only, or poorly distributed water	50
>50% owned	75		
>50% leased	25		
Dry	0	None of the above	0

3. Land Condition Scaling.

Weeds	Points	Erosion	Points
Less than 10% of land has problem infestation of Colorado state-listed noxious weeds.	35	No evidence of active gullying, wind erosion, eroded soil deposits or deflations	65
Greater than 10% of land has a problem infestation of Colorado state-listed noxious weeds.	0	Evidence of active gullying, wind erosion, eroded soil deposits or deflations	0

4. Distance to Annexed Boundary Scaling.

Distance to Annexed Boundary	<1/2 mile	>1/2 = 1 mile	>1 = 2 miles	>2 = 5 miles	>5 miles
Score	20	40	60	80	100

5. Habitat Value Scaling.

Criteria	Score
Site known to support a federal or state endangered or threatened plant or animal species; site known to support a plant or animal species or plant community classified by the CNHP as rare or imperiled (G1-G3 ranking)	100
Site known to support a high diversity of native plant or native animal species (100 plant or 100 animal species)	75
Site known to support a low diversity of native plant and native animal species (<100 plant and <100 animal species)	40
Land does not support meaningful numbers of plants or animals.	0

6. Strategic Value Scaling.

Criteria	Score
Portion of property exists <i>within public agency plan for open space</i> (open space, separator, regional trail).	50
Property is <i>adjacent to existing permanently protected open space</i> (public park/forestland/natural area, easement).	50

7. Visual/Scenic Value Scaling.

Criteria	Level of quality or importance of feature		
	Low Score	Med. Score	High Score
Scenic features(s) on the property , including geologic formations, vegetation, water or a representative rural landscape. (Points relative to the outstanding, unique, rare or prominent quality of the feature(s))	0	25	50
Property provides an unobstructed foreground or background to scenic feature(s) off the property . (Points relative to quality of scenic feature(s) off the property)	0	15	30
Level of public accessibility to view points to see scenic feature(s) on the property, or to view points where the property provides an unobstructed foreground or background to scenic feature(s) off the property. (Points relative to the importance of the view to the community, as a whole)	0	10	20

8. Cultural/Historical Value Scaling.

Criteria	Score
Property contains significant features	100
Property does not contain significant features	0

LARIMER COUNTY LESA SUMMARY SCORESHEET

Name: _____

Date: _____

Site: _____

Factor	Points	Weight	Score	Totals
LE – Land Evaluation	_____	X 1.00	= <input type="text"/>	<input type="text"/>
SA1 - Farm size	_____	X 0.30	= <input type="text"/>	<input type="text"/>
SA1 - Water availability	_____	X 0.20	= <input type="text"/>	<input type="text"/>
SA1 - Land condition	_____	X 0.10	= <input type="text"/>	<input type="text"/>
			SA1 Total	<input type="text"/>
SA2 - Distance to annexed boundary	_____	X 0.15	= <input type="text"/>	<input type="text"/>
			SA2 Total	<input type="text"/>
SA3 - Habitat value	_____	X 0.07	= <input type="text"/>	<input type="text"/>
SA3 - Strategic value	_____	X 0.10	= <input type="text"/>	<input type="text"/>
SA3 - Visual/Scenic value	_____	X 0.04	= <input type="text"/>	<input type="text"/>
SA3 - Cultural/Historic value	_____	X 0.04	= <input type="text"/>	<input type="text"/>
			SA3 Total	<input type="text"/>
Total LESA Score (LE + SA1 + SA2 + SA3)				<input type="text"/>

NOTES: Describe on-farm investments contributing to productivity

Appendix C – Sample LE Rating

The following is an example of a rangeland site that contains soils with the “w” subscript, denoting wet meadows.

Soil Map Unit	Acres	% of Site	Capability Class	LE value	LE score
46	210	22	III	70	15.4
95	75	8	III	70	5.6
47	225	24	IV	50	12.0
84	110	12	IV w*	50	6.0
15	325	34	VII	0	0.0
SUBTOTAL				39.0	
*BONUS				<i>0.02 X 110</i>	2.2
TOTAL				41.2	

***BONUS:** Bonus points are awarded to ranch sites containing the wet meadow “w” subscript. Multiply the number of acres soils with a “w” subscript by 0.02. This product is then added to the LE score. The maximum allowed bonus is 10 points.

Appendix D– Colorado State Noxious Weed List

The following weed species, listed in alphabetical order, are identified as the State Noxious Weeds. They have been identified by individual counties as problem weeds in the county's area or have been recommended for management through public testimony. These weed species should be considered by each local advisory board and local governing body in the development, adoption and enforcement of their noxious weed list and noxious weed management plan. The State Noxious Weeds are:

Absinth wormwood (<i>Artemisia absinthium</i>)	Meadow knapweed (<i>Centaurea pratensis</i>)
African rue (<i>Peganum harmala</i>)	Mediterranean sage (<i>Salvia aethiopis</i>)
Black henbane (<i>Hyoscyamus niger</i>)	Medusahead rye (<i>Taeniatherum caput-medusae</i>)
Black nightshade (<i>Solanum nigrum</i>)	Moth mullein (<i>Verbascum blattaria</i>)
Blue mustard (<i>Chorispora tenella</i>)	Musk thistle (<i>Carduus nutans</i>)
Bouncingbet (<i>Saponaria officinalis</i>)	Myrtle spurge (<i>Euphorbia myrsinites</i>)
Bull thistle (<i>Cirsium vulgare</i>)	Orange hawkweed (<i>Hieracium aurantiacum</i>)
Camelthorn (<i>Alhagi pseudalhagi</i>)	Oxeye daisy (<i>Chrysanthemum leucanthemum</i>)
Canada thistle (<i>Cirsium arvense</i>)	Perennial pepperweed (<i>Lepidium latifolium</i>)
Chicory (<i>Cichorium intybus</i>)	Perennial sowthistle (<i>Sonchus arvensis</i>)
Chinese clematis (<i>Clematis orientalis</i>)	Plumeless thistle (<i>Carduus acanthoides</i>)
Coast tarweed (<i>Madia saliva</i>)	Poison hemlock (<i>Conium maculatum</i>)
Common burdock (<i>Arctium minus</i>)	Puncturevine (<i>Tribulus terrestris</i>)
Common crupina (<i>Crupina vulgaris</i>)	Purple loosestrife (<i>Lythrum salicaria</i>)
Common groundsel (<i>Senecio vulgaris</i>)	Quackgrass (<i>Elytrigia repens</i>)
Common mullein (<i>Verbascum thapsus</i>)	Redstem filaree (<i>Erodium cicutarium</i>)
Common St. Johnswort (<i>Hypericum perforatum</i>)	Rush skeletonweed (<i>Chondrilla juncea</i>)
Common tansy (<i>Tanacetum vulgare</i>)	Russian knapweed (<i>Centaurea repens</i>)
Common teasel (<i>Dipsacus fullonum</i>)	Russian-olive (<i>Elaeagnus angustifolia</i>)
Cypress spurge (<i>Euphorbia cyparissias</i>)	Russian thistle (<i>Salsola collina</i> and <i>S. iberica</i>)
Dalmatian toadflax, broad-leaved (<i>Linaria dalmatica</i>)	Saltcedar (<i>Tamarix parviflora</i> and <i>T. ramosissima</i>)
Dalmatian toadflax, narrow-leaved (<i>L. genistifolia</i>)	Scentless chamomile (<i>Anthemis arvensis</i>)
Dame's rocket (<i>Hesperis matronalis</i>)	Scotch thistle (<i>Onopordum acanthium</i> and <i>O. tauricum</i>)
Diffuse knapweed (<i>Centaurea diffusa</i>)	Sericea lespedeza (<i>Lespedeza cuneata</i>)
Downy brome (<i>Bromus tectorum</i>)	Shepherdspurse (<i>Capsella bursa-pastoris</i>)
Dyer's woad (<i>Isatis tinctoria</i>)	Spotted knapweed (<i>Centaurea maculosa</i>)
Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	Spurred anoda (<i>Anoda cristata</i>)
Field bindweed (<i>Convolvulus arvensis</i>)	Squarrose knapweed (<i>Centaurea virgata</i>)
Flixweed (<i>Descurainia sophia</i>)	Sulfur cinquefoil (<i>Potentilla recta</i>)
Giant salvinia (<i>Salvinia molesta</i>)	Swainsonpea (<i>Sphaerophysa salsula</i>)
Green foxtail (<i>Setaria viridis</i>)	Tansy ragwort (<i>Senecio jacobaea</i>)
Hairy nightshade (<i>Solanum sarrachoides</i>)	Velvetleaf (<i>Abutilon theophrasti</i>)
Halogeton (<i>Halogeton glomeratus</i>)	Venice mallow (<i>Hibiscus trionum</i>)
Hoary cress (<i>Cardaria drabs</i>)	Wild caraway (<i>Carum carvi</i>)
Houndstongue (<i>Cynoglossum officinale</i>)	Wild mustard (<i>Brassica kaber</i>)
Hydrilla (<i>Hydrilla hydrilla</i>)	Wild oats (<i>Avena fatua</i>)
Johnsongrass (<i>Sorghum halepense</i>)	Wild proso millet (<i>Panicum miliaceum</i>)
Jointed goatgrass (<i>Aegilops cylindrical</i>)	Yellow foxtail (<i>Setaria glauca</i>)
Kochia (<i>Kochia scoparia</i>)	Yellow nutsedge (<i>Cyperus esculentus</i>)
Leafy spurge (<i>Euphorbia esula</i>)	Yellow starthistle (<i>Centaurea solstitialis</i>)
Mayweed chamomile (<i>Anthemis cotula</i>)	Yellow toadflax (<i>Linaria vulgaris</i>)

Appendix E- Map of Larimer County

