Urbanization of Rural Landscapes Syllabus and Teaching Materials from a University Course

Richard Olson

University of Nebraska-Lincoln

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Urbanization of Rural Landscapes

Syllabus and Teaching Materials from a University Course

Richard Olson
Editor

Spring, 1999

University of Nebraska-Lincoln:

Center for Sustainable Agricultural Systems
Department of Agronomy
Department of Agricultural Economics
Department of Community and Regional Planning

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The November 1998 elections included more than 100 ballot initiatives throughout the United States that were intended to preserve farms and open space, and in some way alter current patterns of development. A large majority of the initiatives passed including a $1 billion bond issue in New Jersey to preserve half of the remaining farmland in that state. At the national level, "smart growth" has become an important issue for the year 2000 elections. Clearly, people are concerned with the changes that are occurring to their rural landscapes.

The rate of change is significant. Each year, more than 1.4 million acres of rural lands are converted to housing, roads, and other development. A far greater number of acres are influenced as development fragments landscapes, and as the expectation of development drives up land prices and fuels speculation. Landscape functions including agricultural production, water quality, biodiversity, climate, and aesthetics are affected, often negatively.

Public concern involves not just what is being lost, but what is being built. New suburbs and strip malls are often bland, auto-dependent and expensive in that the cost of services exceeds property tax revenues. Suburban design with its cul-de-sacs, walls of garage doors, and lack of mixed-use neighborhoods does not foster a sense of community. Meanwhile, the inner cities often decay as businesses and money move to the city's edge.

Concern about these changes translates into an interest among students and other members of the community in understanding why these changes are occurring, what the effects are, what alternatives exist, and how preferred alternatives might be achieved. Many college courses in disciplines such as architecture, planning, and law address some aspects of the issue, but few courses provide a complete overview of the topic. We have developed and taught at the University of Nebraska-Lincoln (UNL) a course—Urbanization of Rural Landscapes—that has a multi-disciplinary structure reflecting the full complexity of land use issues.

Figure 1 illustrates the conceptual foundation of the course. The use of a particular parcel of land is influenced by decisions and conditions at several scales in a spatial hierarchy. For example, a farmer's decision to put a permanent open-space easement on her land may be based on an offer from a state-level open-space program that receives its funding from a national program established by Congress. Another farmer's bankruptcy and forced sale of land to a developer
Fig. 1. Land use is influenced by decisions and conditions at different scales. Within this spatial hierarchy, the decision of how to use a particular parcel of land is influenced by economic, sociological, ethical, ecological, and legal factors. In turn, land use decisions affect each of these factors at each scale.
may derive in part from low commodity prices resulting from national trade policies and crop surpluses in other countries.

Within the spatial hierarchy, legal, economic, sociological, ethical, and ecological factors interact at every scale to directly or indirectly influence the fate of particular parcels of farmland. Only by acknowledging these hierarchical relationships and the complex interactions among many factors can local land use decisions be fully understood. This framework also helps in evaluating the consequences of farmland loss. The conversion of a parcel of farmland has economic, social, ecological, and aesthetic implications. Conversion occurs parcel by parcel, but its cumulative effects are felt at all scales.

**Learning objectives:** The course was designed so that a student who successfully completes it will be able to

- Describe the major factors influencing land use decisions in the United States
- Describe the patterns and consequences of land conversion in the United States
- Identify alternatives to sprawl and other typical development patterns
- Access internet and other sources of information on land use policy and farmland preservation
- Demonstrate a familiarity with land use planning tools, policies, and procedures
- Describe trends in urbanization and land use in the Lincoln/Omaha area
- Participate in and contribute to community debates on land use issues

The course was offered for credit through three departments—Community and Regional Planning, Agricultural Economics, and Agronomy. Students in the spring 1999 class included juniors, seniors, and graduate students from 11 different departments. Several members of the Lincoln community audited the course and brought a wealth of practical experience to the class. Thirteen faculty, local and state government officials, and members of the private sector contributed to teaching the course.

Lectures were limited in order to allow ample time for experiential and interactive learning approaches including semester-long small group projects, decision case studies, field trips, visioning and planning exercises, and computer exercises. The text for the course, *Under the Blade: The Conversion of Agricultural Landscapes* was supplemented by journal articles, newspaper articles, and various gleanings from the world wide web.
This volume contains the course syllabus and many of the associated teaching materials including exercises, exams, selected readings, and references. The volume is organized chronologically with the materials from each week grouped. Each section begins with a brief overview of themes and objectives for the week, and a description of the materials presented in the section. Some of the exercises included in the volume are:

- A gallery walk exploring the factors at different scales that influence land use decisions
- An evaluation of student aesthetic responses to different rural and urban scenes
- The use of the PA BLUPRINTS software package to illustrate the relationship between land use regulations and the appearance of the landscape
- A jig-saw exercise for teaching about common land use paradigms
- A knowledge of place quiz to increase student awareness of ecological processes in their community
- A capstone visioning and planning exercise in which students apply knowledge learned throughout the course to a local landscape design problem

Hopefully, the materials in the volume will provide some useful ideas to instructors at other institutions who want to design a course on this topic or modify an existing course. Toward the goal of providing ideas for teaching this topic, the volume also includes syllabi from four other courses—three from UNL and one from Cornell University—that deal with land use issues.

I thank the Lincoln Journal-Star, Omaha World-Herald, and The News (Waverly) for permission to include some of their articles in this volume.

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Richard Olson, CSAS
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Volume 11: Urbanization of Rural Landscapes—Syllabus and Teaching Materials from a
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# Table of Contents

Editor’s Introduction ......................................................................................................................... i

Contents ........................................................................................................................................ vii

**Week 1  Course overview, Landscape functions** ........................................................................ 1

Course syllabus ................................................................................................................................. 3
Evaluation form for relative contribution of project group members ................................................ 10
Form for calculating final grade ....................................................................................................... 11
Instructions for writing a letter to the editor .................................................................................... 12
Table of Contents of *Under the Blade* .......................................................................................... 15
References and information sources ................................................................................................. 17
Lecture notes: Trends in the structure and function of U.S. agricultural landscapes ..................... 36
Gallery walk exercise: Factors affecting land use decisions ............................................................ 48
Definitions of sprawl ......................................................................................................................... 52

**Week 2  Farmland loss, Student projects** .................................................................................. 55

Lecture notes: What are we losing? .................................................................................................. 57
Student exercise: What are landscape functions worth? ................................................................. 60
Knowledge of place quiz ................................................................................................................... 61
Guidelines for student projects ......................................................................................................... 70
Background on ecological footprint project ..................................................................................... 71
Background on indicators of sustainability project ........................................................................... 74
Background on Comprehensive Plan project ................................................................................... 77

**Week 3  Suburban structure and function** ............................................................................... 83

Journal article: Reducing crime and the fear of crime by reclaiming New Zealand’s suburban street (first page only) ........................................................................................................ 85
An introduction to Sonora co-housing .............................................................................................. 86
Newspaper article: Duo documents city’s urban sprawl ................................................................. 89

**Week 4  Economics of land conversion** .................................................................................. 91

Lecture outline and handouts: Economics of farmland conversion (Bruce Johnson) .................... 93
Cost of community services studies (American Farmland Trust) .................................................... 103
Newsletter article: Joint Senate committee listens to report on costs of sprawl ........................... 108
Population statistics handout .......................................................................................................... 109
Journal article: Why are there so many of us? Description and diagnosis of a planetary ecopathological process (first page only) ................................................................. 110
Week 5  Information sources 111

Internet resources lab handout.................................................................113

Week 6  Land use law 115

Lecture outline: Comprehensive Planning and Zoning (Joe Luther)..........................117
Sample decision case study sheet: Developing the Picard Estate................................133
The British Columbia Agricultural Land Reserve...........................................134
Green Corridor Project fact sheets..............................................................140

Week 7  Ecological design, Alternative urban design 157

Example answers for Knowledge of Place Quiz.............................................159
Sun trajectories diagram.................................................................................165
Lecture notes and illustrations: Principles of Ecological Design (Cecil Steward)........166
Journal article: "Completely off the grid" (first page only)...............................181
Flier: Lincoln-Green Building Group..............................................................182
Antelope Commons architectural guidelines..................................................183

Week 8  Lincoln (NE) land use patterns and trends 199

Information packet on Lincoln/Lancaster Co. planning and land use....................201
Lincoln field trip information.........................................................................217

Week 9  Midterm exam 231

Midterm exam...............................................................................................233
Midterm exam example answers......................................................................234

Week 10  Aesthetics 239

Class exercise: Aesthetic qualities of built and natural environments....................241
Selected results from aesthetic quality exercise................................................245

Week 11  Land use regulations and landscape structure 249

PA Bluprints flier............................................................................................251
Interactive computer exercise instructions.......................................................254
Week 12  Regional planning, Lower Platte River Corridor  257

Jig-saw exercise regarding growth.................................................................259
Newspaper article: Farmers yielding to sprawl.............................................260
Report of the Lower Platte River Corridor charette.....................................263
Joslyn Castle Institute for Sustainable Communities.................................273

Week 13  Landscape design and visioning  277

Visioning exercise description........................................................................279

Week 14/15  Student project presentations  285

Evaluation form for student project final presentations...............................287
Ecological footprint project summary............................................................288
Indicators of sustainability project summary..................................................290
Comprehensive Plan review project summary................................................293

Final Exam  295

List of 31 potential final exam questions.........................................................297
Final exam.......................................................................................................301
Final exam example answers..........................................................................303

Other Syllabi  309

Property and Community (Giesler)...............................................................311
The Community and the Future (Luther).......................................................320
Legal Aspects of Planning (Luther).................................................................323
Introduction to Planning (Luther).................................................................329
Week 1

An introduction of the students to the structure and expectations of the course, the learning objectives, and the evaluation procedures for determining grades.

Through a lecture/slide presentation, the students are introduced to the concept of the landscape as the key level in the spatial hierarchy for evaluating the effects of land use decisions. The relationship between landscape structure and landscape function is explored.

A gallery walk exercise promotes interaction among the students as they draw on their own knowledge to determine the factors at each level of the spatial hierarchy that are most important in influencing land use decisions.

Readings from Under the Blade: The Introduction describes the spatial hierarchy for evaluating land use decisions, and the socio-economic paradigm that governs most land use decisions. Chapter 2 supplements the lecture on landscape structure and functions. The Austin, Texas case study illustrates a land use debate that focuses on water quality rather than agricultural production.

Materials in this section:

- Course syllabus
- Evaluation form for relative contribution of project group members
- Form for calculating final grade
- Instructions for writing a letter to the editor
- Table of Contents of Under the Blade
- References and information sources
- Lecture notes: Trends in the structure and function of U.S. agricultural landscapes
- Gallery walk exercise: Factors affecting land use decisions
- Definitions of sprawl
Urbanization of Rural Landscapes
(AGRO 496/896, CRPL 495P/895P, AECN 896)
Spring 1999
Richard K. Olson, David A. Mortensen,
Cecil Steward & Mark Liebig

3 credits
Wednesdays, 6 pm to 8:50 pm
234 Keim Hall, East Campus

Learning objectives: By the completion of the course, the student will be able to

• Describe the major factors influencing land use decisions in the United States
• Describe the patterns and consequences of land conversion in the United States
• Identify alternatives to sprawl and other typical development patterns
• Access internet and other sources of information on land use policy and farmland preservation
• Demonstrate a familiarity with land use planning tools, policies, and procedures
• Describe trends in urbanization and land use in the Lincoln/Omaha area
• Participate in and contribute to community debates on land use issues

Prerequisites: Junior, senior or graduate standing and permission of the instructors.


Supplemental readings will include journal articles, newspaper clippings, and other handouts.
## Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
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<tbody>
<tr>
<td>January 13 (class 1)</td>
<td>6 learning objectives, course overview, introductions</td>
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<tr>
<td></td>
<td>6:50 break</td>
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<tr>
<td></td>
<td>7:05 Lecture: Trends in the structure and function of U.S. agricultural landscapes</td>
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<td></td>
<td>8:10 gallery walk exercise: factors affecting land use</td>
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<td></td>
<td>Readings in Blade: Introduction, pp 53-90, 390-397</td>
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<tr>
<td>January 20 (2)</td>
<td>6:00 discussion of readings</td>
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<td></td>
<td>6:30 Lecture: what are we losing; measuring impacts; knowledge of place</td>
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<td></td>
<td>7:30 break</td>
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<td></td>
<td>7:45 Overview of student projects:</td>
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<tr>
<td></td>
<td>7:50 ecological footprint analysis of Lincoln (Liebig)</td>
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<td></td>
<td>8:10 sustainability indicators for Lincoln (Mortensen)</td>
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<tr>
<td></td>
<td>8:30 sustainability in the Lincoln planning process (Steward)</td>
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<tr>
<td></td>
<td>Blade: pp 15-41</td>
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<tr>
<td>January 27 (3)</td>
<td>6:00 discussion of Doekson (1997): New Zealand's suburban street</td>
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<td></td>
<td>6:30 photo-documentation of Lincoln suburban development (Elliot)</td>
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<td></td>
<td>7:30 break</td>
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<tr>
<td></td>
<td>7:45 project teams organize</td>
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<tr>
<td></td>
<td>Blade: pp 421-429</td>
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<tr>
<td>February 3 (4)</td>
<td>6:00 project groups meet</td>
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<td></td>
<td>6:30 video: World Population</td>
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<td></td>
<td>6:45 break</td>
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<td></td>
<td>7:00 Lecture: economics of ag and development; competition for land (Johnson)</td>
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<tr>
<td></td>
<td>8:00 Lecture: cost of services (Hulvershorn)</td>
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<td>Blade: pp 137-173, 437-449</td>
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<tr>
<td>February 10 (5)</td>
<td>6:00 resources on the net (computer lab) - 1 project group</td>
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<tr>
<td></td>
<td>project team meetings - 2 groups</td>
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<tr>
<td></td>
<td>7:00 2nd group in computer lab</td>
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<tr>
<td></td>
<td>8:00 3rd group in computer lab</td>
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<tr>
<td>February 17 (6)</td>
<td>6:00 video: Houses in the Fields</td>
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<tr>
<td></td>
<td>6:30 law and land use; decision case (Luther)</td>
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<td></td>
<td>8:30 video: Farmland forever (farmers sell development rights)</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
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<td>-----------</td>
<td>-----------------------------------------------------------------------------------</td>
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</tbody>
</table>
| February 24 (7) | 6:00 small group discussion of current questions  
|            | 6:30 Lecture: ecological design (Steward)                                           
|            | 7:30 break                                                                         
|            | 7:40 project teams discuss team interactions                                        
|            | 8:00 Lecture: Antelope Commons; New Urbanism (Maller/Dubas)                        |
|           | Blade: pp 217-244, 373-382                                                        |
| March 3 (8) | 6 discussion of readings                                                           
|            | 6:30 Lecture: Lincoln/Lancaster Co. Plan (DeKalb)                                  
|            | 7:30 break                                                                         
|            | 7:45 preview of field trip                                                         
|            | 7:50 project groups meet                                                           |
| March 6    | Field trip: Lincoln urban to rural; Antelope Commons                                |
| March 10 (9)| 6:00 project groups meet                                                           
|            | 7:00 project status reports                                                        
|            | 7:15 break                                                                         
|            | 7:30 MIDTERM EXAM                                                                 |
| March 17   | Spring break                                                                      |
| March 24 (10) | 6:00 aesthetic rating exercise (Elliot, Sutton)                                    
|            | 6:30 project meetings while ratings are summarized                                  
|            | 7:45 discussion of results of aesthetic exercise                                    
|            | 8:30 review midterm exam                                                           |
| March 31 (11)| 6:00 overview of PA Bluprints exercise                                             
|            | 6:20 project group meeting or PA Bluprints exercise (group 1)                       
|            | 7:10 project group meeting or PA Bluprints exercise (group 2)                       
|            | 8:00 project group meeting or PA Bluprints exercise (group 3)                       |
| March 31 (11)| Blade: pp 287-292, 328-334                                                        |
| April 7 (12)| 6:00 jigsaw exercise: five myths                                                   
|            | 6:30 discussion of South Platte River corridor plan (Allen, Sutton)                 
|            | 7:30 break                                                                         
|            | 7:45 project groups meet                                                           |
| April 10   | Field trip: S. Platte River corridor (Allen, Sutton), Joslyn Castle Institute for  
|            | Sustainable Communities (McGuire)                                                   |
| April 14 (13)| 6:00 introduction to visioning exercise for Steven's Creek watershed              
|            | 6:30 Step 1: preparation of vision statements                                        
|            | 7:30 break                                                                         
|            | 7:45 Step 2: map making                                                            |
|            | Blade: pp 181-211, 247-266, 450-452                                               |
| April 21 (14) | 6:00 visioning exercise: complete maps Lincoln’s future: Stakeholders panel  
| | 6:30 gallery walk exercise to discuss results of visioning exercise  
| | 7:15 break  
| | 7:30 presentation by ecological footprint analysis group  
| | 8:30 course evaluation  
| April 28 (15) | 6:15 presentation by sustainability indicators group  
| | 7:15 break  
| | 7:30 presentation by Comprehensive Plan group  

An optional bike ride along the Mopac trail to observe the urban-rural transition at the eastern edge of Lincoln will be arranged when weather permits.

**Student Projects**

Working in small groups, each student will address one of three questions in a semester-long project. Each group will have a faculty mentor to guide and assist the activity. Students can choose among:

**Project #1:** Estimate the ecological footprint of Lincoln — the amount of productive land required to sustain the city (Dr. Mark Liebig, mentor)

**Project #2:** Develop a set of sustainability indicators for Lincoln and derive a baseline measurement of the indicators (Dr. David Mortensen)

**Project #3:** Evaluate the Lincoln/Lancaster County planning process and recommend changes in the process to make sustainability an explicit criterion in all land use decisions (Dean Cecil Steward)
Student Evaluation

As a 400/800 level course, Urbanization of Rural Landscapes includes both upper-level undergraduate and graduate students. All students enrolled in the course are expected to meet the same high standards in completion of the learning objectives, and will be evaluated by the same criteria. Undergraduates and graduates will work together in project groups, with individual grades assigned as described below. Our procedure in grading exams will be to read and grade undergraduate exams before reading the graduate student exams.

Grades will be based on:

Class participation (5% of course grade)
This concept includes attendance at class, being prepared, speaking out, and generally participating in the many discussions and small group exercises in a meaningful way.

Knowledge of place quiz (5%)
A take-home exercise to illustrate the ecological context within which your home exists, and some of the basic knowledge required for ecological design of sustainable homes and communities.

Exams: Midterm (25%) and final (30%)
Closed-book, comprehensive essay exams covering information from the classroom, field trips, and readings.

Group project (35%)
Students choose one of three semester-long projects: (1) ecological footprint analysis of Lincoln, (2) development of indicators of sustainability for Lincoln, and (3) evaluation of the Lincoln/Lancaster County planning process. Forty percent of the group project grade is based on a written report and 60% is based on a presentation to a panel of local citizens, planners, and teachers.

In a group activity, some members may contribute more than others. For this reason, each member’s relative contribution to the project is considered in determining their project grade. To determine relative contributions, each member of the group rates the relative contribution of all members of the group including themselves. These ratings, together with a rating done by the project faculty leader, are averaged to give a final relative scoring. For example, a group with five members might produce the relative contribution ratings shown in the table that follows. Students A, C, and D contributed their “fair share,” while B contributed less and E contributed more.
<table>
<thead>
<tr>
<th>Student</th>
<th>Relative contribution (%)</th>
<th>Student grade if project grade = 90</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
<td>90</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>72</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
<td>90</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
<td>90</td>
</tr>
<tr>
<td>E</td>
<td>30</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>-----</td>
</tr>
</tbody>
</table>

Forty percent of the project grade is apportioned based on relative contributions, so:

\[
\text{individual grade} = (0.6 \times \text{project grade}) + (0.4 \times \text{relative contribution} \times \text{project grade})
\]

With a group of five students and a project grade of 90:

\[
\text{individual grade} = (0.6 \times 90) + (0.4 \times \frac{\text{relative contribution}}{20} \times 90)
\]

A, C, and D's project grade = \(54 + 36 = 90\)

B's project grade = \(54 + 18 = 72\)

E's project grade = \(54 + 54 = 108\)

The maximum score an individual can receive for their project grade is 110.
Factors Affecting Land Use Decisions

A Gallery Walk Exercise

The decision to continue farming a parcel of land or to convert it to other uses including housing and other forms of development is influenced by many legal, social, economic, ecological, and ethical factors. All of these factors operate within a spatial hierarchy in which decisions and conditions at larger scales including town/county, state, national, and global influence the use of a specific farm or field (see Figure 1.1, page 7 in Under the Blade).

The purpose of this exercise is to determine what are some of these factors. The class divides into five groups (your group is circled on the list below). Each group addresses a different spatial scale, and develops a list of 10 to 15 factors at their scale that would influence the decision of whether to retain a U.S. farm in farming. The list is written on flip-chart paper.

After 15 minutes, the lists are posted with masking tape on the walls around the room. One person from each group is assigned to stand with their list. Other students circulate for 15 minutes reviewing and commenting on the lists. Additions or changes to each list are made by the attending student.

For the final 10 minutes, the whole group reconvenes, and each of the five students monitoring a list describes the comments and changes received during the gallery walk.

Groups

1. Factors a farmer might consider when deciding whether to keep his or her farm in agriculture.

2. Factors at the city/county level that would influence whether a farm remains in agriculture.

3. Factors at the state level that would influence whether a farm remains in agriculture.

4. Factors at the national level that would influence whether a farm remains in agriculture.

5. Factors at the global level that would influence whether a farm remains in agriculture.
The gallery walk is a teaching technique geared to the learning characteristics of adults. According to Caffarella and Barnett (1994), these characteristics include:

1. adults’ need for acknowledgment and use of their experiences and prior knowledge
2. a diverse set of learning styles
3. a desire to be actively involved in the learning process versus being a passive recipient of knowledge

The gallery walk allows participants freedom within general guidelines to pursue the paths of most interest to themselves. It requires an integration of knowledge acquired during the workshop with the knowledge brought to the workshop by the participants. The people involved in the exercise generate the outputs, and so have a feeling of ownership of the results.

The gallery walk is most effective when conducted as a late or concluding exercise for a session. With this timing, the participants not only have new knowledge to apply to the task, but are also familiar enough with each other that inhibitions regarding participation in a discussion have been reduced.

A Partial List of Factors at Different Scales that Influence Land Use Decisions for Individual Farms

1. Factors a farmer might consider when deciding whether to keep his or her farm in agriculture.

- commodity prices: current and projected
- farm debt
- projected net farm income
- intentions of neighboring farmers
- rate of local development
- changes in local agricultural infrastructure
- land prices for development
- problems with neighboring developments
- interest of children in farming
- age and health of farmer
- emotional attachment to land
- wishes of family
- condition of farm soil, buildings, equipment
- burdensomeness of regulations
- availability of labor
- suitability of site for development (e.g., water, sewer or leach field)

2. Factors at the city/county level that would influence whether a farm remains in agriculture

- local PDR programs
- zoning decisions
- placement of sewers, roads, and other infrastructure
- property tax rates for agricultural land
- local markets for produce (farmers’ market, restaurants, local processors)
- population and economic growth
- public attitudes toward and knowledge of agriculture
- availability of farm labor
- maintenance of farm support services
- activities of local land trusts
3. Factors at the state level that would influence whether a farm remains in agriculture

- estate tax laws
- funding of PDR programs
- court decisions on private property rights
- funding of highways, airports, other infrastructure
- legislation promoting community land-use planning
- tax breaks to entice new businesses
- statutes authorizing the voluntary donation of conservation easements
- right to farm laws
- laws authorizing the creation of agricultural districts
- state land trusts
- environmental regulations
- state promotions of agricultural products

4. Factors at the national level that would influence whether a farm remains in agriculture

- population and immigration policies
- tax laws affecting real estate transactions
- estate taxes
- funding for PDR programs
- court decisions on property rights
- funding of highways, airports, other infrastructure
- agricultural trade policies
- farm subsidy programs
- environmental laws
- tax breaks for farmland preservation
- Medicaid eligibility requirements
- interest rates
- stock market/general economic health
- national land trusts
- USDA bias against minority farmers

5. Factors at the global level that would influence whether a farm remains in agriculture

- food production in other countries
- food purchases by other countries
- climate change
- stratospheric ozone depletion
- transnational corporate decisions
- global trade agreements
- tariffs or import restrictions in other countries
- human migration
- global economic conditions
- currency exchange rates
SPRAWL

Haphazard growth or extension outward, especially that resulting from real estate development on the outskirts of a city.

American Heritage Dictionary, third edition

The Vermont Forum on Sprawl defines sprawl as "dispersed development outside of compact urban and village centers along highways and in rural countryside."

Noted policy analyst Anthony Downs, at a May 1998 Transportation Research Conference, identified ten "traits" associated with sprawl:

1. unlimited outward extension,
2. low-density residential and commercial settlements
3. leapfrog development
4. fragmentation of powers over land use among many small localities
5. dominance of transportation by private automotive vehicles
6. no centralized planning or control of land-uses
7. widespread strip commercial development
8. great fiscal disparities among localities
9. segregation of types of land uses in different zones
10. reliance mainly on the trickle-down or filtering process to provide housing to low-income households

"In its path, sprawl consumes thousands of acres of forests and farmland, woodlands and wetlands. It requires government to spend millions extra to build new schools, streets and water and sewer lines. In its wake, sprawl leaves boarded up houses, vacant storefronts, closed businesses, abandoned and often contaminated industrial sites, and traffic congestion stretching miles from urban centers."

Maryland Gov. Parris N. Glendening
Urbanization of Rural Landscapes

Area and Population of Omaha, NE, 1885-1997

The population density of Omaha increased from 3123 people/mi² in 1885 to 6185 people/mi² in 1950. Density then declined to 5153 people/mi² in 1970, and 4018 people/mi² in 1997. Figure courtesy of Joslyn Castle Institute for Sustainable Communities, Omaha, NE.
Week 2

To convert statistics on farmland conversion from numbers to something more meaningful, a slide presentation illustrates farms and landscapes in different regions of the United States. The objective is to put a face on what is being lost, and to show regional differences that influence land use trends and impacts. For non-agricultural students, the presentation illustrates concepts such as prime farmland.

Returning to the theme that landscapes provide many services other than agricultural production, a small-group exercise has students discuss and estimate the dollar value of selected ecosystem services.

A lecture in week 7 will address ecological design—the use of knowledge of natural systems to produce sustainable architecture and communities. Ecological design requires a knowledge of place, yet many people don't understand the very basic aspects of their place such as where the water from their tap comes from, what type of soil their house sits on, or what watershed they live in. A knowledge of place quiz is handed out this week along with some background information on ecological design. The quiz is due week 7 as preparation for the lecture on ecological design.

The remainder of the class is devoted to overviews of three student projects: an ecological footprint analysis of Lincoln NE, developing a set of indicators of sustainability for Lincoln, and an evaluation and improvement of the Lincoln Comprehensive Plan. These overviews provide students with the necessary information to choose which project they would like to work on. The overviews are given by the three faculty members who will serve as advisors to each project.

The reading from Under the Blade is Chapter 1, which provides an overview of patterns and trends in the conversion of rural lands in the United States to supplement the lecture “What are we losing?”

Materials in this section:

Lecture notes: What are we losing?
Student exercise: What are landscape functions worth?
Knowledge of place quiz
Guidelines for student projects
Background on ecological footprint project
Background on indicators of sustainability project
Background on Comprehensive Plan project
Overhead: Table -- Acres developed by land use category (See Under the Blade, p. 23)

From the National Resources Inventory (NRI), 14 million acres of rural lands developed during the period 1982-1992.

Revisit the point that NRI data underestimates conversion
- acreages only count house and small area
- functional impact of diffuse development; California forests are declassified as commercial when development density reaches 1 house per 80 acres

Not all development comes on cropland

Not all cropland is of equal value for agronomic production.

Slide # 1: Iowa soybean field -- prime farmland

Prime farmland = land on which crops can be produced for the least cost and with the least damage to the resource base. Criteria include soil quality, availability of water, favorable growing season, and slope. 24% of US non-federal rural lands are classified as prime farmland.

Slide #2: Flint Hills (KS) non-prime farmland

Slide #3: Pacific Northwest old-growth forest

Is this prime farmland? Could be...

Two-thirds of US prime farmland is used as cropland; the rest as forest, pasture, range, etc.

4 million acres of prime farmland were developed between 1982 and 1992.

Slide #4: tart cherry region landscape, northwest Michigan

Unique farmland = Farmland used to grow vegetables, grapes and horticultural crops including fruits, nuts and berries that have unique soil and climatic requirements. Tart cherry region in Michigan, Florida citrus and winter vegetables; raisins in California (refer to quote in Chapter 1); much of Central Valley for many vegetable and fruit crops.
Land near a city is unique to that city.

Refer to: American Farmland Trust (AFT 1997) map of farming on the edge illustrating regions at highest risk. Regions at higher risk are those with large amounts of prime and unique farmland, and rapid development.

Five most threatened regions:

1. Sacramento and San Joaquin Valleys
2. Northern Piedmont (se PA, MD, ne VA)
3. s. WI/n. IL
4. Texas Blackland Prairie (e. TX)
5. Willamette and Puget Sound valleys

... what is the land like that is being converted?

Brief slide tour of some of the ag areas addressed in the case studies in Under the Blade

Vermont (Case study 1)
S# 5: VT dairy barn; avg farm size = 225 acres; dairy, cattle, greenhouse
S# 6: maple sugar house; maple products are important
S# 7: horse logging: although we focus on ag, forests are 90% of New England; nationally about 1/3 of land is forest

se Pennsylvania (Case study 3)
S# 8: hay and corn; PA avg farm size = 154 acres
S# 9: aerial view of diversified strip cropping; very diverse agriculture; Lancaster Co has the most productive dryland agriculture in US
S# 10: Rodale Farm

northern Virginia (Case study 5)
S# 11: Virginia pasture; agriculture is livestock based
S# 12: haying

western Virginia (Case study 6)
S# 13: beef cattle
S# 14: cove farm in mountains; refer to Wear Cove story in chapter 2, Under the Blade

Florida (Case study 8)
S# 15: grapefruit grove
S# 16: peppers on muck soils with sugarcane windbreak
S# 17: rangeland; large parts of interior and northern Florida are range; major beef and dairy state
Ohio (Case study 9)
  average farm = 207 acres; part of eastern cornbelt
  S# 18: aerial view of strip crops (corn, hay, small grain); corn and beans are main crops
  S# 19: Amish farm

Illinois (Case study 10)
  5th in total ag marketings; highest percent (59%) of land as prime farmland
  S#20: IL no-till field

Minnesota (Case study 12)
  S# 21: aerial view; dark high organic matter soils

NE (Case study 13, 14)
  4th in total farm marketings
  S# 22: Stelling farm corn field; east of Lincoln
  S# 23: western Nebraska wheat-fallow -- hard to generalize about large states

northwest Arkansas (Case study 15)
  S# 24: chicken houses

Rocky Mts (Case study 17)
  S# 25: Colorado mountain valley

w WA/OR (Case study 18, 19)
  avg farm in w. WA around 100 acres
  S# 26: vineyard
  S# 27: broccoli field

California (Case study 20, 21)
  S# 28: strawberry harvest; CA #1 in total ag marketing; 250 commodities grown in the Central Valley

S# 29-33: farmland conversion

This is wonderful, productive land, but we continue to convert it to development. Why?

Because developers can outbid agriculture in competition for land

  Around Lincoln, NE, the value of good farmland for agriculture $1500 to $2000 per acre;
  for development $10,000 to $15,000 per acre.

but, landscapes have other functions or services

S# 34: list of landscape functions (see Under the Blade, p. 56)
Student Exercise
What are landscape functions worth?

The class is divided into five groups, each of which is asked to estimate the dollar value of one of the following:

(1) The value of the water quality function of one acre of the New York City watersheds.
(2) The annual value of the habitat and water quality functions of one acre of European farmland
(3) The cost to replace the structure and functions of one acre of a natural ecosystem
(4) The value of one acre of farmland near Lincoln for its ability to produce food in the year 2020
(5) The value of the genetic diversity in one acre of native prairie

After 15 to 20 minutes, each group presents its estimate to the class, giving its rationale and receiving class comments. The purpose of the exercise is to illustrate that assigning a value to ecosystems and ecosystem services is difficult and the estimates are highly uncertain. However, we implicitly assign values every time we make a land use decision. Can we make the valuation explicit?

For discussion and comparison with the estimates derived by each group:

(1) New York City has 1900 sq. miles of watershed, and construction of filtration plants to treat the water would cost $5 billion, so the water quality function of the watersheds is worth more than $4100 per acre.

(2) The European Union pays a top rate of $380/acre/year to farmers to alter practices to protect water quality and wildlife habitat.

(3) One way to estimate “the value of ecosystem services is to determine what it would cost to replicate them in a technologically produced, artificial biosphere. Experience... with Biosphere II in Arizona indicates that this is an exceedingly complex and expensive proposition. Biosphere I (the Earth) is a very efficient, least-cost provider of human life-support systems.” (Costanza et al. 1997). Biosphere II cost $200 million for 3.15 acres of ecosystems or more than $63 million/acre. Even so, most species within the dome died; the humans got hungry; air had to be pumped in; and cooling/heating/electricity were supplied from outside the dome.

S# 35: schematic of biosphere 2
S# 36: ocean and coral reef component of biosphere 2
S# 37: rainforest in biosphere 2
S# 38: cropland in biosphere 2

References


For most of human history, builders were forced by their limitations to consider site characteristics such as topography and soil type, to use local materials, to build with consideration of natural processes such as wind (cooling) and solar energy (heating), and to reflect local customs. Recent increases in technology and the availability of energy have allowed developers to simply flatten a building site and erect cookie-cutter boxes without consideration of most natural factors. No thought is given to integrating culture and nature.

Among the problems resulting from this approach are:

• buildings that require large energy inputs for heating and cooling
• developments that are subject to flooding and that exacerbate flooding downstream
• landscaping with non-native species that require supplemental water and chemicals
• reductions in species diversity
• a spiritual and aesthetic disconnection of people and nature

In contrast to the technological approach, ecological design is “any form of design that minimizes environmentally destructive impacts by integrating itself with living processes” (Van der Ryn and Cowan 1996) (see Table I). Ecological design is grounded in the details of place, and true solutions to problems grow from place. Wendell Berry (1987) suggests that we ask “What is here? What will nature permit us to do here? What will nature help us to do here?”

Attachment 1 describes five principles of ecological design. Attachment 2 illustrates some of the structural elements in an ecologically designed project, the Ojai Foundation School. The integration of design with sun, wind, water and earth requires knowledge of those processes.

The Knowledge of Place Quiz is designed to help you achieve a better understanding of your “place,” and of the types of information and local knowledge that form the foundation of ecological design and ecological accounting.


Knowledge of Place Quiz

All questions should be answered in relation to the place where you live. Depending on the scale of the question, this would be your house/apartment or your town/city.

Your name:

Street address of your dwelling:

Longitude and latitude of your dwelling:

Brief description of your dwelling and the lot it is located on:

Hydrology

1. How many gallons of water does your household use per year?

2. Describe the path that water takes from the time it falls as rain until it flows from your faucet.

3. During a heavy rain, describe the first hundred miles of the path that water takes after it runs off your property.

4. Is your dwelling located in a floodplain?
Nutrient cycling and waste assimilation

1. Describe the path and ultimate fate of your waste after the toilet is flushed.

2. Where does your garbage go? How many years until that repository is full?

Energy

1. How many kilocalories of solar energy fall on each square meter of your site each year?

2. On the longest day of the year, what direction and angle should a solar collector face to maximize energy capture? On the shortest day of the year?

3. How many kilocalories of energy does your house or apartment use each year in the form of electricity? natural gas? heating oil?

4. Where and how is your electricity generated?

5. What percent of your food is grown within Nebraska?

6. What is the average distance that a bite of food travels from the field to your table?

7. How many calories are expended in growing, processing, and transporting each calorie of food that you eat?
Climate

1. What is the average annual precipitation?

2. During the ten-year period 1986 through 1995, how many years had average precipitation (defined as +/- 10% of long term average)?

3. On average, how is total annual precipitation distributed among Jan-Mar, April-June, July-Sept, Oct-Dec. (% in each quarter)

4. What are the average dates of the first and last frost?

5. What is the mean monthly maximum and minimum temperature for January? For July?

6. What is the predominate wind direction in winter? Summer?

Topography and soils

1. Describe the main soil series of your site.

2. What is the elevation of your site?

3. What is the slope and aspect of the site on which your dwelling is located?

4. What direction does your house or apartment face?

Natural communities

1. What is the name of the main vegetation type that occupied the region in which you live before European settlement?

2. Name five of the main native plant species of this vegetation type.

3. Name five native mammals.
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Richard Sutton, 373 Plant Science, 472-1127, rsutton@unlinfo.unl.edu
Instructions: The purpose of this evaluation is to determine the relative contribution of each member of the Indicators of Sustainability project team to the project’s outputs (final report and presentation). The nine members of the team are listed below. You are to show your assessment of the members’ relative contributions to the group’s total outputs by distributing 180 points among the members including yourself. If everyone on the team contributed equally, give each person 20 points. A person making twice the average contribution would receive 40 points, while a person contributing half the team average would receive 10 points. All 180 points should be assigned. The average assessment of the nine team members along with an assessment by the faculty project mentor will be used in determining each member’s grade as described in the syllabus.

This evaluation is due no later than May 5 during the final exam. Your evaluation sheet will not be shown to other project members; only averages will be reported.

<table>
<thead>
<tr>
<th>Project Member</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jim Baker</td>
<td></td>
</tr>
<tr>
<td>David Drozd</td>
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</tr>
<tr>
<td>Joe Frey</td>
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<td>Graham Johnson</td>
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<td>Cory Roth</td>
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<td>Sarah Shaw</td>
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<tr>
<td>Robert Smith</td>
<td></td>
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<tr>
<td>Roxanne Smith</td>
<td></td>
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<tr>
<td>Gina Temple</td>
<td></td>
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<tr>
<td>TOTAL POINTS</td>
<td>180</td>
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</tbody>
</table>
Final Grade Determination

Student __________________________

Class participation 

Knowledge of place quiz 

Midterm exam 

Final exam 

Project* 

TOTAL 

Extra credit 

GRAND TOTAL 

Letter Grade: 

*Your individual grade for the project is calculated as follows (see syllabus for complete details):

Group project grade = (_____ [report] x .4) + (_____ [presentation] x .6) = _________ (a)

Your relative contribution to project grade = _____ / 20 = ________ (b)

Your project grade = ((a) x .6) + ((a) x .4 x (b)) = ________
Letters to the Editor

One of the learning objectives for the course is that the students will be able to participate in and contribute to community debates on land use issues. A letter to the editor of the local newspaper is one way to become involved.

For extra credit, each student may submit a letter to the editor of any Nebraska daily or weekly paper. If the letter is accepted and published, the student's final average grade for the course will be increased by two points (e.g., an 89 becomes a 91) if the letter meets the criteria listed below. A clipping of the published letter must be handed in to receive credit.

To be effective, constructive, and more likely to be published, letters should:

- address a current land use or planning issue of local or statewide interest, preferably an issue recently addressed in an article in the paper
- reflect your personal ideas and views (and should not imply association with the course or University)
- direct criticisms against ideas or community policies and actions, not against individuals
- support criticisms or suggestions with facts, and cite supporting sources if possible (for example, “A recent report by the American Farmland Trust...”)
- be brief and concise
- follow all guidelines of the newspaper for letters to the editor

The following is an example of a letter that was published in the Lincoln Journal Star.

To the editor:

Councilwoman Cindy Johnson was correct when she said that the proposed beltway “is a long-term plan that will not solve the traffic problems of today but will be something Lincoln grows into.” The city of Atlanta built a beltway, and now has such sprawl and traffic that it is considering building a 211-mile Outer Perimeter. The construction of a beltway around Charlotte, N.C. is fueling what an editor of the Charlotte Observer called “an orgiastic devouring of the countryside.” In city after city the lesson is the same — beltways foster a diffuse, sprawling development that reduces the vitality of the central city while destroying the productivity and beauty of the countryside. It is unfortunate that Lincoln has chosen to repeat this error rather than learn from it.

Richard Olson
Many Join in Continuing Discussion

A good many World-Herald readers have strongly held opinions, as the space above this column each day demonstrates. The Public Pulse is their forum.

The continuing popularity of the Pulse is reflected in the large number of letters submitted each year: 6,812 letters were sent to the Pulse in 1998. More than half of them — 3,642 — were published.

Two-thirds of those letters — 2,466 — were written by residents of the metropolitan area (excluding Carter Lake and Council Bluffs, which are counted as Iowa letters). People from elsewhere in Nebraska contributed 893 of the published letters last year; 220 Iowa letters. People from elsewhere in the Pulse's readership area (excluding Carter Lake and Council Bluffs, which are counted as Iowa letters) wrote 1,870 letters. People from elsewhere in the Pulse's readership area (excluding Carter Lake and Council Bluffs, which are counted as Iowa letters) wrote 1,870 letters. People from elsewhere in the Pulse's readership area (excluding Carter Lake and Council Bluffs, which are counted as Iowa letters) wrote 1,870 letters.

October was a record-setting month in terms of published Pulse letters: 372 letters (of 739 received) appeared in the Pulse that month.

The flow of letters in October reflected unusually strong reader interest in major news stories — the continuing Clinton-Lewinsky scandal and independent counsel Kenneth Starr's report along with the issues to be decided in the November elections. Among issues closest to home, taxes — and Initiative 413 — were the most-often-mentioned topics in the Pulse in October.

In many ways, 1998 was a typical year for the Pulse. It closely resembled 1997. In that year, almost exactly the same number of letters were received and published.

The year 1996 was different. Spirited election campaigns involving a Nebraska U.S. Senate seat and the 2nd District seat in Congress, among other things, generated a record number of letters — 5,839 Pulse letters were sent that year, 44 percent more than in either 1997 or '98.

In October of that year, with Election Day approaching, 1,176 letters arrived, making it a record month in a record year. For the first 10 months of that year, the number of letters sent to the Pulse each month ranged from 711 (March 1996) to October's record of nearly 1,200. In a typical year, by comparison, an average of just under 600 Pulse letters would arrive each month.

In order to publish more of last October's large volume of letters, we often stretched the Pulse to the bottom of this page, occupying space usually devoted to a syndicated column.

Earlier, on Aug. 28, for the first time in recent memory, Pulse letters appeared on both the editorial page and the More Commentary page. The use of extra space on that day gave more readers an opportunity to air their views on President Clinton's grand jury testimony and his Aug. 17 speech in which he admitted, for the first time, an inappropriate relationship with Monica Lewinsky.

In recent years, readers have made use of fax and e-mail to get their letters into the hands of the Pulse editor. Traditional mail, however, remains the most popular method of correspondence for Pulse writers. Slightly less than a third of the letters are mailed. (Although faxed letters are not counted separately from regular mail, approximately four letters are sent via the post office for every one letter that is faxed.)

While not every letter sent to the Pulse is published, each letter is examined, and editors strive to give each letter fair consideration. The Pulse by definition is mostly for topics in the news — public-policy issues. Topics that are most in the news, that are discussed over coffee in the Midlands, are often discussed in the Pulse as well. So, too, are previous Pulse letters. Now and then, a letter leads to a news story or editorial comment.

The Public Pulse is a running dialogue among and for the readers, from elected officials to ordinary men and women whose names are familiar only in their personal circle of acquaintances. All those people, however, take the time and effort to share observations and opinions that they consider important. A given letter might change minds or move hearts, prompt amens or strong disagreement — or perhaps all those things. With each day's mail, the conversation continues.

**TO WRITE TO THE PULSE**

Readers are welcome to send letters to The Public Pulse. Letters must include the writer's first and last names and address and must be signed in the writer's own hand. Telephone numbers are required in lieu of a handwritten signature on electronically transmitted letters and recommended on all letters. (Neither addresses nor phone numbers are published.) The use of pen names is rarely permitted. Letters may be edited for length, clarity, accuracy and taste. Letters containing substantial misrepresentation of fact are not considered.

*By Mail:* Public Pulse
World-Herald Square
Omaha, NE 68102

*By Fax:* (402) 344-4547

*By E-Mail:* pulse@owh.com

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**How to write us**

The Journal Star welcomes readers' comments. Letters to the editor must include the writer's name, address and home and work telephone numbers. Please sign letters that are mailed. Letters that are faxed or hand-delivered. The editors may edit and condense letters; the suggested length limit is 250 words. Send letters to Letter to Editor, Lincoln Journal Star, P.O. Box 81688, Lincoln, NE 68501. Fax: (402) 473-7291. E-mail: oped@nbcweb.com.
Urbanization of Rural Landscapes

Examples of Letters to the Editor Written by Students

Omaha offers lesson

Lincoln's current growth debate centers on several key issues: economic growth, urban expansion, traffic congestion and watershed protection. Many incorrectly assume that expanding Lincoln's city limits is necessary to continue economic growth and that beltway construction is the only answer to easing traffic congestion. Unfortunately, as Omaha's experience illustrates well, expansion of Lincoln's city limits cannot guarantee economic prosperity but rather will intensify problems associated with local population growth and increased sprawl development and traffic. Lincoln's central city will continue to decline as the middle class continues to leave the older neighborhoods for the new suburbs, farmland will continue to be lost to new development and watershed protection will be compromised.

Fortunately, it's not too late to change our course. Rather than making Lincoln bigger, we can make it better. We can continue to enjoy economic growth while maintaining a high quality of life. We can avoid sprawl and additional traffic by using development dollars for redevelopment projects in the urban core and by using transportation dollars for a new public transit system. Communities like Portland, Ore.; Boulder, Colo.; Seattle; Tallahassee, Fla.; and Cleveland Heights, Ohio, are actively working to improve their cities through redevelopment and transit opportunities. It's time for Lincoln to do the same.

Jamee Dyck, Lincoln

Major issue: Traffic

Traffic congestion seems to be a major campaign issue for the upcoming city council and mayor's races. Many talk of easing congestion by building more roads or widening roads. Lessons from Lincoln and other cities teach that traffic soon fills the widened and new roads.

The only way to ease traffic congestion is to decrease the number of cars on the road. Public transportation and mixed-use developments which provide for walkable communities are the best answers to solving traffic problems. Building more and bigger roads only promotes more and bigger traffic problems.

One would hope that candidates for city offices would embrace an alternative to pouring limited city resources into concrete.

Roxanne E. Smith, Lincoln

Farms threatened by court decisions

I'm glad you printed Cheryl Stubben-dick's article, "Right to farm laws help consumers," in the March 31 edition of The Independent. This issue may have significant impact on the future of Nebraska's economy and communities.

I wonder if many farmers have considered the potential impact of the Iowa Supreme Court's recent ruling that held a new commercial or residential development has the right to claim a nuisance on a farmstead that may have been held by several generations of an Iowa family.

A newcomer could develop near a farm and claim that the farming operations are causing the value of their land to fall, therefore creating a legal case to make the farm shut down operations.

The majority of the growth in Nebraska continues to be in the cities along Interstate 80. This is the same land that makes up the fertile Platte River Valley. This valley still makes agriculture the state's largest industry and helps rank Nebraska in the top 10 in production.

If we look forward just 15 to 20 years as Nebraska begins to diversify its economy, we can see how these very different land uses will come into conflict, Nebraska's growing communities versus Nebraska's most valuable cropland.

The success of Nebraska's cities is currently driven by success in agriculture, in the future maybe not. Look at the amazing land space growth of the cities of Omaha and Lincoln.

The Iowa decision will likely draw developers to challenge the right to farm laws in Nebraska. It is unclear whether the Iowa decision will create a precedent for Nebraska. One can only hope that the Nebraska Legislature modifies its law to address this serious land use decision. If not, this decision will likely be decided by judges instead of the representatives of the entire state.

Land use decisions should be made by the people, not by the courts.

Kevin M. Gaden
Lincoln
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Illustrations</td>
<td>vii</td>
</tr>
<tr>
<td>Foreword</td>
<td>xi</td>
</tr>
<tr>
<td>Preface and Acknowledgments</td>
<td>xv</td>
</tr>
<tr>
<td>About the Contributors</td>
<td>xix</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Chapter 1: Farmland Loss in America</td>
<td>15</td>
</tr>
<tr>
<td>Chapter 2: A Landscape Perspective on Farmland Conversion</td>
<td>53</td>
</tr>
<tr>
<td>Chapter 3: The Law of the Land</td>
<td>97</td>
</tr>
<tr>
<td>Chapter 4: The Economics of Farmland Conversion</td>
<td>137</td>
</tr>
<tr>
<td>Chapter 5: Preserving Community Agriculture in a Global Economy</td>
<td>181</td>
</tr>
<tr>
<td>Chapter 6: Ethics and Aesthetics in the Loss of Farmland</td>
<td>217</td>
</tr>
<tr>
<td>Chapter 7: A National Policy for Farmland Preservation</td>
<td>247</td>
</tr>
<tr>
<td><strong>Case Studies</strong></td>
<td></td>
</tr>
<tr>
<td>1. Swanton, Vermont</td>
<td>270</td>
</tr>
<tr>
<td>2. Tompkins County, New York</td>
<td>278</td>
</tr>
<tr>
<td>3. Southeast Pennsylvania</td>
<td>287</td>
</tr>
<tr>
<td>5. Fauquier County, Virginia</td>
<td>303</td>
</tr>
</tbody>
</table>
Under the Blade

6. Albemarle County, Virginia  
7. Tillery, North Carolina  
8. Lake County, Florida  
9. Ohio  
10. DeKalb County, Illinois  
11. Waukesha County, Wisconsin  
12. Minnesota  
13. Lincoln, Nebraska (school placement)  
14. Lincoln, Nebraska (Antelope Commons development)  
15. Northwest Arkansas  
16. Austin, Texas  
17. Rocky Mountain region  
18. Western Washington  
19. Oregon  
20. Fresno County, California  
21. The Oxnard Plain, California  
22. Norway  

Index  

453
Urbanization of Rural Landscapes
Selected References and Information Sources

FARMLAND LOSS AND PRESERVATION

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http://edweb.sdsu.edu/courses/EDTEC572/final_projects/open_space/Articles.html


Frantzen, R., and B. Hunsberger. 1998. Legacy on the Line (A five-part series by the Portland Oregonian describing land use, farmland loss, and problems with Oregon’s land use laws)


Organizations and websites

1000 Friends of Minnesota
http://www.1000fom.org/

American Farmland Trust
1200 18th Street N.W., Suite 800
Washington, DC 20036
Farmland Information Library: http://farm.fic.niu.edu/fic/home.html
Homepage: http://www.farmland.org

Land Tenure Center
University of Wisconsin-Madison
1357 University Avenue
Madison, WI 53715 USA
http://www.wisc.edu/ltc

ECOLOGICAL DESIGN

Publications


Organizations and websites

Center of Excellence for Sustainable Development, U.S. Department of Energy
http://www.sustainable.doe.gov/

Center for Maximum Potential Building Systems (Max's Pot)
8604 F.M. 969
Austin, Texas 78724
512/928-4786
http://www.greenbuilder.com/maxpot/
A non-profit education, demonstration, and research organization with over 70 years combined experience in the application of appropriate technologies and sustainable design practices to meet the needs of a broad range of users, from individual home builders to regional planning and natural resource agencies.

EcoCity Cleveland
2841 Scarborough Rd.
Cleveland Heights, OH 44118
216-932-3007
http://cua6.csuohio.edu/~ecocity/index.html

The Ecological Design Institute
http://www.ecodesign.org/edi/aboutedi.html
Creates innovative design solutions that link nature, culture and technology to reintegrate the needs of human society within the balance of nature.
Global Eco-village Network
http://www.gaia.org
The Global Eco-village Network (GEN) was founded in 1994 to support the development of sustainable human settlements, facilitate the exchange of information amongst the settlements, make information available about eco-village concepts and demonstration sites.

Green Design Network.
http://www.greendesign.net/
Information and resources on ecological design, green buildings, and sustainable communities.

Sustainable Architecture, Building and Culture
http://www.west.net/~prince/index.html
A unique compendium of links and content oriented to the global community of ecological building proponents.

Sustainable Sources (ecological design, environmental architecture)
http://www.greenbuilder.com

Terrain: A Journal of the Built and Natural Environment
http://www.terrain.org/index.html

The Urban Ecologist
405 14th St, Suite 900
Oakland, CA 94612

Urban Ecology Australia

INDUSTRIALIZATION AND GLOBALIZATION

Publications


Organizations and websites

International Forum on Globalization.
1555 Pacific Avenue
San Francisco, CA 94109
http://www.ifg.org
Publishes IFG News quarterly

National Contract Poultry Growers Association
http://www.web-span.com/pga/

Rural Advancement Foundation International (RAFI)
http://www.rafi.ca/

SeedQuest (information on seed companies, mergers and acquisitions)
http://www.seedquest.com

URBAN DESIGN

Publications


Hanson, C. 1996. The Cohousing Handbook: Building a Place for Community. Hartley & Marks Publisher, Point Roberts, WA.


Prospect New Town. 1998. Colorado's first New Urban development is rapidly rising on 80 acres in Longmont. The site of Prospect New Town is a former tree farm whose leftover trees are being used to create a shady, mature landscape. http://www.prospect-newtown.com/history.html


Seaside, Florida homepage: http://www.seasidefl.com/


Walkable Communities Inc., 320 S. Main St, High Springs, FL 32643 (904) 454-3304


Organizations and websites

American Planning Association
http://www.planning.org
Has a planners book service with many titles on rural and small-town planning.
Center for Watershed Protection
8391 Main St.
Ellicott City, MD 21043
http://www.pipeline.com/~mrunoff/mldp.htm
(techniques to protect and restore urban watersheds; A group of planner, designers and builders has crafted 22 principles to guide development and protect watersheds)

Carfree.com: Carfree cities past, present, and future. Solutions to the problem of the urban automobile.
http://www.carfree.com/

Smart Growth Network: Development that serves economy, community, and environment.
http://www.smartgrowth.org

National Trust for Historic Preservation
http://www.nationaltrust.org/

Walkable Communities Inc.
320 S. Main Street
High Springs, FL 32643
http://www.walkable.org

Watershed Agricultural Council
RR 1, Box 74, NYS Route 10,
Walton, NY 13856-9751
Phone: 607.865.7790
Fax: 607.865.4932
http://www.nycwatershed.org/contact.htm
(administers program for protecting New York City’s Catskill/Delaware watershed)

SPRAWL

http://www.bofa.com/community/comm_env_urban1.html

City of Rochester. 1998. Virtual tour and discussion of patterns and effects of sprawl in Rochester, NY:
http://204.97.3.30:8080/appxs/psrawler.nsf/c8eb4a63be3e761f8525660b005ca233/0decce02332be5638525660b005c5a94?OpenDocument#start

The Sprawl Resource Guide.
Designed to familiarize you with several of the key issues associated with sprawl, and direct you to some of the wealth of information already available on the Web.

Vermont Forum on Sprawl
http://www.vtsprawl.org
To assist Vermont and Vermonters in achieving compact settlement surrounded by rural landscape while encouraging community and economic development to be consistent with this vision.

POPULATION

Publications


Organizations and websites

Demography & Population Studies: The Internet Guide to Demography and Population Studies

Facing the Future: People and the Planet
http://www.facingthefuture.org/index4.htm

The National Library for the Environment's Population & Environment Database Project:
http://www.cnie.org/pop/pophome.htm

World Overpopulation Awareness
www.overpopulation.org

Zero Population Growth, Inc.
1400 16th Street, NW, Suite 320, Washington, DC 20036
Phone: 202/332-2200; Fax: 202/332-2302
www.zpg.org
ETHICS AND AESTHETICS


SUSTAINABILITY

Publications


Creating a Sustainable London: London's Metabolism
http://www.greenchannel.com/slt/metabtxt.htm


Hart, M. 1995. Criteria and Ranking Scheme for Indicators of Sustainability. QLF/Atlantic Center for the Environment, North Andover, MA.


Organizations and websites

Agriculture, Food and Human Values Society http://www.clas.ufl.edu/users/rhaynes/afhvs/index.html#top

The Center for a New American Dream http://www.newdream.org/
A not-for-profit membership-based organization that helps individuals and institutions reduce and shift consumption to enhance our quality of life and protect the environment.

Center for the Study of Living Standards
111 Sparks Street, Suite 500
Ottawa, Ontario K1P 5B5
Phone 613-233-8891
Fax 613-233-8250
http://www.csls.ca/
(index of Economic Well-being for Canada)

Center for Sustainable Communities
Cascadia Community and Environment Institute
208 P Gould Hall Box 355726
University of Washington
Seattle, Washington 98195-5726 USA
http://weber.u.washington.edu/~common
Die off web site
http://dieoff.com/page1.htm
Many links to articles and sites regarding carrying capacity.

Hart Environmental Data Sustainability Indicators webpage
http://www.subjectmatters.com/indicators/HTMLSrc/Indicators.html

Izaak Walton League Pathways to Sustainability project
http://www.iwla.org/sep/index.html

Joslyn Castle Institute for Sustainable Communities
3902 Davenport Street
Omaha, NE 68131
402-595-1902
http://www.unl.edu/JCI/index.html

Millennium Institute, Internet Resources on Indicators
http://www.igc.apc.org/millennium/links/inds.html

The Natural Step
PO Box 29372
San Francisco CA 94129-0372
http://www.naturalstep.org/
The Natural Step (TNS) is a non-profit environmental education organization working to build an ecologically and economically sustainable society. TNS offers a framework that is based on science and serves as a compass for businesses, communities, academia, government entities and individuals working to redesign their activities to become more sustainable.

Northwest Environment Watch
1402 Third Avenue, Suite 1127
Seattle, WA 98101-9743
http://www.northwestwatch.org/
Northwest Environment Watch (NEW) is an independent, not-for-profit research and publishing organization. NEW’s mission is to foster a sustainable economy and way of life in the Pacific Northwest.

Redefining Progress
One Kearny Street, Fourth Floor
San Francisco CA 94108
http://www.rprogress.org
We encourage debate about the true meaning of progress, one that goes beyond economic growth to incorporate environmental sustainability and social equity. For instance, our Genuine Progress Indicator offers Americans a better gauge of societal progress compared to the gross domestic
product (GDP). Our Community Indicators Network supports 200 organizations across the country that identify key economic, social, and environmental measures of community health, agree on targets for improvement, and then track their community's progress in meeting those goals.

Renewable Natural Resources Foundation
http://members.aol.com/rnrf/

Seattle Community Network (grass roots organizing, links)
http://www.scn.org/

Second Nature
44 Bromfield Street, Fifth Floor
Boston, MA 02108-4909
http://www.2nature.org
Second Nature is a nonprofit organization working to help colleges and universities expand their efforts to make environmentally sustainable and just action a foundation of learning and practice.

Sustainable Communities Network: Linking citizens to resources and one another to create healthy, vital, sustainable communities.
http://www.sustainable.org

Sustainable Seattle
514 Minor Ave. N
Seattle WA 98109-5516
206-622-3522
http://www.scn.org/sustainable/about.htm

Sustainable Seattle indicators of sustainability
http://www.scn.org/sustainable/indicators/indicators95

ECOLOGICAL ECONOMICS

Publications


Organizations and websites

International Society for Ecological Economics
http://kabir.umd.edu/ISEE/ISEEhome.html

Vancouver Island eco-website. Section on ecological economics:
http://www.island.net/~cnelson/economics.htm (other sections on ecological design and sustainability)

RELOCALIZING AGRICULTURE

Publications


Berry, W. 1995. Another Turn of the Crank. CounterPoint, Washington, D.C.


Organizations and websites

City Farmer
Canada's Office of Urban Agriculture
#801-318 Homer St.
Vancouver, B.C. V6B 2V3
Phone: (604) 685-5832
Fax: (604) 685-0431
www.cityfarmer.org

Community Food Security Coalition
P.O. Box 209
Venice, CA 90294
Tel: 310-822-5410
Fax: 310-822-1440
http://www.foodsecurity.org/

The Food Alliance
1829 NE Alberta, Suite 5
Portland, OR 97211
call (503) 493-1066
fax (503) 493-1069
www.thefoodalliance.org

Food First
http://www.foodfirst.org

MISCELLANEOUS

Defense Meteorological Satellite Program. 1998. U.S. Lights at Night (satellite image composite map) http://www.ngdc.noaa.gov/dmsp/ Click on City Lights at Night, then click on US portion of world map.


Introductory Lecture Notes
Trends in the structure and function of U.S. agricultural landscapes

“S#” refers to a slide shown as part of the lecture.

S# 1: Virginia landscape

A landscape is “a heterogeneous land area composed of a cluster of interacting components that is repeated in a similar format throughout.”

S# 2: Midwest landscape

The key concepts in this definition are that landscapes are comprised of identifiable patches and linear elements, and these landscape elements are not randomly arranged, but form patterns.

The spatial pattern strongly influences interactions among the patches, and these interactions determine the functions of the landscape.

A good example of this is....

S# 3: Aerial view of Georgia piedmont with riparian forest and rowcrop fields

Riparian forests filter sediment and nutrients from runoff, resulting in good water quality. If the same proportion of the landscape was in forest and rowcrops, but the forests were on the uplands and the rowcrops went to the stream edge, the water quality would be much worse.

Spatial pattern matters, not just to water quality but to all functions of rural landscapes. Which are...

S# 4: Drawing of city under a dome

To illustrate landscape functions, imagine a city placed under a dome, cut off from the surrounding rural landscapes. What happens under the dome? (Wackernagel and Reese 1996)

S# 5: List of landscape functions

Food and fiber, water, air, climate, waste assimilation, biodiversity, aesthetics, culture and community.
Returning to the dome, how far would we have to expand the dome to make the city sustainable? How many acres of productive land would we need to include under the dome for each resident? How many acres of productive land does each person in the US need?

This is a complex question to answer.

Of course, as a nation we have plenty of landscape area to meet our needs for these functions... or do we?

S# 6: Farm landscape

I’ll focus now on the agricultural production function of landscapes, but keep in mind that this is only one of many functions.

Today, each American in the conterminous US has approximately 6.3 acres of productive crop, range, pasture, and forest land. A group of us at the Center for Sustainable Agricultural Systems estimate that 5.2 acres are used to supply current food and fiber needs, with the remainder to net exports (US is also a major food importer -- need to subtract imports from exports).

Gives a 17% land cushion for meeting domestic needs under current conditions.

But, and this is the core of my talk, there are four related trends that ensure a massive and rapid transformation of rural landscapes into two divergent types—what I call the suburban/ruburban landscape, and the industrial agriculture landscape—both of which have a reduced ability to provide us with the full suite of landscape services that we desire. Our cushion is at risk.

These trends are:

1. Population

Population in 1952 = 158 million

Current US population = 271 million

S# 7: US population growth; 2.5 million per year

S# 8: Census projections for 2050

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>519 million</td>
</tr>
<tr>
<td>middle</td>
<td>394 million</td>
</tr>
<tr>
<td>low</td>
<td>283 million</td>
</tr>
</tbody>
</table>

But, Ahlburg and Vaupel (1990) show that the Census Bureau high estimate is a good medium projection. Under any scenario, the US population is growing rapidly.
S# 9: Development in progress

Homes, roads, and other infrastructure are needed for 2.5 million more people per year;

From 1982-1992, 14 million acres of rural lands were converted to development (National Resources Inventory), while the US population increased by 23 million during the same period.

S# 10: Satellite photo of urban edge

The amount of land developed in future years, and the impact of that development, will depend on where and how Americans choose to live, which brings us to the second trend:

Trend 2. Increases in wealth, mobility, and technology that give people greater freedom to choose where they live

S# 11: Highway

The post-interstate highway construction boom has greatly increased access to the countryside, decreasing what is called the “friction of distance.” Tony Hiss, author of “The Experience of Place” estimates that any place within a two-hour drive of a major population center is a potential bedroom community, and landscapes within 5 hours are subject to second home or resort development. This includes most of the US.

S# 12: Satellite composite of US lights at night

Lights show population distribution.

S# 13: Worker at computer

Technological changes can sometimes virtually eliminate the friction of distance through telecommuting; creating a new mobile class referred to as lifestyle refugees, amenity migrants, modern cowboys or lone eagle entrepreneurs

Also, by 2010, there will be 70 million people age 55+. Retired people have more freedom of where to live; development of retirement communities is booming.

When you add to these changes the current situation of a robust economy and cheap energy prices, the result is an increasingly sprawling development pattern:

S# 14: 1990-96 population increase and urbanized area increase for Denver, Chicago, St. Louis

The urbanized area of most cities is increasing far faster than their population.
S# 15: Per capita land conversion statistics 1982 vs 82-92

The amount of land converted to development for each new resident of the US almost doubled from 1982 to 1992.

Sprawl is also occurring away from cities. Everywhere there is an attractive landscape, people want their place in the country

S# 16: Cherry orchard

NW Michigan accounts for 90% of US tart cherry production

S# 17: Lake Michigan shoreline

Location is ideal for cherries because of the moderating influence of Lake Michigan

But, the natural beauty of the lake brings severe development pressure

S# 18: For sale sign by orchard

S# 19: Trophy house in orchard

S# 20: Ranch subdivision map on relator sign

Rocky Mountain valleys face pressures for ranchettes

S# 21: Aerial view of ranchettes

Acreages are one reason why the National Resources Inventory underestimates the amount of land conversion -- only a small area around each house is counted as developed.

And, statistics on the number of acres developed tell nothing about the impact of development on landscape function.

S# 22: Houses next to cornfield

What happens to the productivity of the remaining farms as development encroaches?

S# 23: Schematic illustrating results of study in se Pennsylvania (Andrews and Chetrick 1988)

A 1% increase in the population of a county will on average cause a 0.1 to 0.2% decrease in the output of a typical farm even with no change in the farm itself.

Agricultural production is clearly a landscape level, not a farm level, function. Why?
S# 24: “Watch for farm machinery” road sign

Increased traffic restricts movement of farm machinery.

S# 25: Abandoned fruit processing plant

As farm numbers decrease, agricultural infrastructure declines.

S# 26: Oregon grass farm

A 500-acre farm in the Willamette Valley incurs an average annual cost to vandalism and tresspass of $5000.


Fairview Gardens in Goleta, CA is an extreme example of the conflicts between ag and urban. In his book “On Good Land,” the farm manager writes:

“In the years that followed, we spent an inordinate amount of time defending our right to be. An anonymous complaint from a neighbor cost the farm thousands of dollars in conditional-use permits for the fruit stand and a trailer. Both had been on the property for a very long time. Then came theft and vandalism to the produce stand, increased traffic and noise, bottles and trash thrown into the fields, and neighbors’ dogs going after our goats, chickens, and a rabbit called Blossom.”

S# 29: For sale sign on corn field

Such hassles combined with the promise of economic windfalls create an impermanence syndrome where land is still in farming but its fate is sealed.

The total land area under an impermanence syndrome is large; throughout the US, the stage is set for the conversion of entire counties.

S# 30: Map of Waukesha County, WI

In 1992, the county had 691 farms; 114,000 acres in farms; $44 million in ag sales.

The towns in the county rejected a county plan to preserve farmland, and now virtually the entire county is zoned for development, primarily 1 to 5 acre lots. New residents don’t want traditional ½ acre suburban lots. (See Under the Blade, case study 11)
In 1992, the county had 703 farms; 204,000 acres in farms; $86 million ag sales

Most farms in the county are owned by developers, who purchase land 20 years in advance of when it will be developed. Land in eastern part of county sells by the square foot ($4.50/sq ft in one case); 1 acre = 43,560 ft²

An Orange County, CA rancher (LA Times), “The pitiful fact of life is that most of the open space that we see here in Orange County is already spoken for and there’s nothing we can do about it.”

But, we do have lots of rural land; not all is under direct threat of development.

What is happening to this land?

Brings us to the 3rd trend:

Trend 3. Industrialization and globalization of agriculture

Implications are a massive restructuring of agriculture and agricultural landscapes.

The marketing sector of agriculture has been steady at 65% of total ag economic activity since the early 1900s. The decline in farm share from 21% to less than 5% comes from an increase in the share of the inputs sector; the substitution of that which is expensive for that which is inexpensive or free:

- fossil fuels for solar power
- pesticides for management
- hybrid seeds for saved varieties
- global positioning systems and yield monitors for farmer knowledge of fields
S# 35: Table showing decline in number of farms and farmers, increase in farm size

As total farm share of the economic pie shrinks, individual farms must get larger to capture enough to survive, which means that many farms fail.

S# 36: Abandoned farmhouse

The result is continuation of a century-long trend toward fewer and larger farms.

S# 37: Table showing largest 9% of farms with 2/3s of land

S# 38: Old farmer

25% of US farmers are age 65 years or older; 22% are age 55 to 64 years; with few farm children interested or able to take over, the stage is set for a massive transfer and consolidation of land. The collapse in commodity prices has accelerated this trend. Nebraska farm income declined 25% in 1997, and is expected to decline a further 20% in 1998.

Director of the Nebraska Rural Development Commission -- “Our best guess is that out of 55,000 commercial producers, there are as many as 15,000 or maybe 20,000 that are in trouble or they’re getting out. They’re not going to have enough income to put together operating loans for next year.”

As farmers disappear, who will determine how our agricultural lands are used?

S# 39: Monsanto logo

Even as farmers see their income plummet, agribusiness is doing well:

Sales by Monsanto’s agricultural businesses were up 18% in the 3rd quarter of 1998

S# 40: Newspaper headlines -- Record earnings for IBP

And meat packers are doing well; $10 hogs translate into record profits for packers.

S# 41: Newspaper headlines -- Dupont-Pioneer merger

Corporations do share one characteristic of farms, a trend toward fewer and larger companies -- See handout for some concentration data.

We are moving toward a situation where a handful of multi-national corporations control the US food system.
Even on the farm, more than 25% of total farm output is contract production -- the farmers lose most control of management decisions.

Trade agreements such as NAFTA and GATT support a global agricultural system where a handful of multi-national corporations have great influence on what happens to the land.

S# 42: Large machinery on bare field

Wendell Berry -- "In their dealings with the countryside and its people, the promotors of the so-called global economy are following a set of principles that can be stated as follows. They believe that a farm or a forest is or ought to be the same as a factory; that care is only minimally necessary in the use of the land; that affection is not necessary at all; that for all practical purposes a machine is as good as a human; that the industrial standards of production, efficiency, and profitability are the only standards that are necessary; that the topsoil is lifeless and inert; that soil biology is safely replaceable by soil chemistry; that the nature or ecology of any given place is irrelevant to the use of it; that there is no value in human community or neighborhood; and that technological innovation will produce only benign results."

S# 43: Clearcut forest slopes

Result of these principles are landscapes that are used solely as places from which to extract raw materials or dump wastes.

S# 44: Declining main street of small town

Rural communities fade away; they aren't competitive. And should that matter?

S# 45: Abandoned farm house

Wendell Berry -- "It may be that my community—its economy, its faith, its local knowledge, its affection for itself and its place—will dwindle on for another generation or two and then disappear or be replaced by a commuter's suburb. If it is doomed, then I have no doubt that much else is doomed also, for I cannot see how a nation, a society, or a civilization can live while its communities die."

As a result of the three trends discussed above, US landscapes are evolving into two types.

(1) suburban/ruburban sprawl centered around megalopolis (eg, Ft. Collins to Colorado Springs; 100 mile long city)

(2) depopulated farm areas supplying raw materials to food processors
There are few people left with knowledge of the land and food production. The US has a mostly urban population at the mercy of a food system controlled by a few transnationals in which food travels on average 1300 miles before being eaten, and 10 calories of energy are expended for every one calorie of food consumed.

Why are we allowing this to happen?

S# 46: Seattle

The fourth trend is an increasing lack of understanding by the public of agriculture, ecology, and landscape function.

But, even with knowledge, what can an individual do? When asked what urban dwellers could do to help agriculture, Wendell Berry replied, "Eat responsibly." He then added, "How we eat determines to a considerable extent how the world is used."

S# 47: Cereal box

The classic example, a $3 box of cereal of which $.06 goes to the farmer.

S# 48: Healthy choice dinner

Our desire for processed foods, whether at a restaurant or from the freezer, ensures that most of the food dollar goes to corporations rather than farmers, and that corporations rather than farmers will determine how the land is used, and that most people will see no practical need to preserve local farmland.

S# 49: Large confinement facility

Our desire for cheap beef, pork, chicken supports the replacement of family farms with mega-confinement operations with the attendant environmental and social problems.

S# 50: Farmers' market

However, personal choices can also support the re-integration of agriculture and community. For example, buying food at a farmers' market

S# 51: Community Supported Agriculture farm

Or even better, participating in the production of your food through membership in a community supported agriculture farm.

44
Proof that your food choices make a difference:

S# 52: Pastured poultry

Muriel Barrett of Sutherland, NE raises 10,000 broilers per year on pasture; processes on-farm and sells direct to customers; nets more than $30,000.

S# 53: Arkansas chicken houses

Con Agra estimates that its contract chicken producers, raising 120,000 broilers per year in a chicken house, will net $3,114.

Building a sustainable society begins with each of us and our own actions. Gandhi -- "Be the change that you desire."

References


Trends in the Structure and Function of U.S. Landscapes

Trends affecting U.S. landscapes

1. Population
2. Lifestyle and mobility
3. Industrialization and globalization of agriculture
4. Ignorance

Table 1. Per capita land availability (acres) in the contiguous United States, 1992 and projected for 2020 and 2050 based on estimated population growth and conversion of land to development. Shown in ( ) is the percent change from 1992.

<table>
<thead>
<tr>
<th>Land class</th>
<th>1992</th>
<th>2020</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest land</td>
<td>2.41</td>
<td>1.77 (-27)</td>
<td>1.11 (-54)</td>
</tr>
<tr>
<td>Rangeland</td>
<td>2.30</td>
<td>1.72 (-25)</td>
<td>1.13 (-51)</td>
</tr>
<tr>
<td>Cropland and pasture</td>
<td>2.11</td>
<td>1.52 (-28)</td>
<td>0.94 (-55)</td>
</tr>
<tr>
<td>Inland and coastal waters and Great Lakes</td>
<td>0.37</td>
<td>0.28 (-24)</td>
<td>0.19 (-49)</td>
</tr>
<tr>
<td>Other rural</td>
<td>0.22</td>
<td>0.16 (-27)</td>
<td>0.11 (-50)</td>
</tr>
<tr>
<td>Developed</td>
<td>0.36</td>
<td>0.43 (+19)</td>
<td>0.49 (+36)</td>
</tr>
<tr>
<td>Total area</td>
<td>7.76</td>
<td>5.88 (-24)</td>
<td>3.96 (-49)</td>
</tr>
</tbody>
</table>

Table 2. Land converted to development in the United States (excluding Alaska) during the period 1982 to 1992 (USDA 1995).

<table>
<thead>
<tr>
<th>Land category</th>
<th>Acres converted</th>
</tr>
</thead>
<tbody>
<tr>
<td>cropland</td>
<td>3,910,000</td>
</tr>
<tr>
<td>pastureland</td>
<td>2,383,000</td>
</tr>
<tr>
<td>forest land</td>
<td>5,367,000</td>
</tr>
<tr>
<td>rangeland</td>
<td>2,029,000</td>
</tr>
<tr>
<td>other rural land</td>
<td>269,000</td>
</tr>
<tr>
<td>water/federal land</td>
<td>21,000</td>
</tr>
<tr>
<td>Total</td>
<td>13,979,000</td>
</tr>
</tbody>
</table>
Sprawl: “Haphazard growth or extension outward, especially that resulting from real estate development on the outskirts of a city.

American Heritage Dictionary, third edition

Assorted Facts on Agricultural Concentration

The largest 9% of U.S. farms control 2/3s of the farmland.

Market share of the top four:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef packers</td>
<td>79%</td>
</tr>
<tr>
<td>Pork packers</td>
<td>57%</td>
</tr>
<tr>
<td>Broiler producers</td>
<td>49%</td>
</tr>
<tr>
<td>Flour millers</td>
<td>62%</td>
</tr>
<tr>
<td>Soybean crushers</td>
<td>80%</td>
</tr>
</tbody>
</table>

The top 10 agrochemical companies control more than 80% of global agrochemical sales.

Six corporations account for half of all U.S. retail food sales.

For more information

American Farmland Trust
Farmland Information Library: http://farm.fic.niu.edu/fic/home.html
Homepage: http://www.farmland.org

Hart Environmental Data Sustainability Indicators webpage
http://www.subjectmatters.com/indicators/HTMILSrc/Indicators.html

International Forum on Globalization.
http://www.ifg.org


Rural Advancement Foundation International (RAFI)
http://www.rafi.ca/

The Sprawl Resource Guide.
http://www.webcom.com/%7epcj/sprawl/sprawl1.html
**Human community**

1. What is the population of your city or town?

2. What is the rate of growth of the population (per cent per year)?

3. At this annual rate, how long will it take the population to double?
Table 1. Characteristics of conventional and ecological design (Van der Ryn and Cowan 1996).

<table>
<thead>
<tr>
<th>Issue</th>
<th>Conventional design</th>
<th>Ecological design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy source</td>
<td>Usually nonrenewable and destructive, relying on fossil fuels or nuclear power; the design consumes natural capital</td>
<td>Whenever feasible, renewable: solar, wind, small-scale hydro, or biomass; the design lives off solar income</td>
</tr>
<tr>
<td>Materials use</td>
<td>High-quality materials are used clumsily, and resulting toxic and low-quality materials are discarded in soil, air, and water</td>
<td>Restorative materials cycles in which waste for one process becomes food for the next; designed-in reuse, recycling, flexibility, ease of repair, and durability</td>
</tr>
<tr>
<td>Pollution</td>
<td>Copious and endemic</td>
<td>Minimized; scale and composition of wastes conform to the ability of ecosystems to absorb them</td>
</tr>
<tr>
<td>Toxic substances</td>
<td>Common and destructive, ranging from pesticides to paints</td>
<td>Used extremely sparingly in very special circumstances</td>
</tr>
<tr>
<td>Ecological accounting</td>
<td>Limited to compliance with mandatory requirements like environmental impact reports</td>
<td>Sophisticated and built-in; covers a wide range of ecological impacts over the entire life-cycle of the project, from extraction of materials to final recycling of components</td>
</tr>
<tr>
<td>Ecology and economics</td>
<td>Perceived as in opposition; short-run view</td>
<td>Perceived as compatible; long-run view</td>
</tr>
<tr>
<td>Design criteria</td>
<td>Economics, custom, and convenience</td>
<td>Human and ecosystem health, ecological economics</td>
</tr>
<tr>
<td>Sensitivity to ecological context</td>
<td>Standard templates are replicated all over the planet with little regard to culture or place; skyscrapers look the same from New York to Cairo</td>
<td>Responds to bioregion; the design is integrated with local soils, vegetation, materials, culture, climate, topography; the solutions grow from place</td>
</tr>
<tr>
<td>Sensitivity to cultural context</td>
<td>Tends to build a homogeneous global culture; destroys local commons</td>
<td>Respects and nurtures traditional knowledge of place and local materials and technologies; fosters commons</td>
</tr>
</tbody>
</table>

66
<table>
<thead>
<tr>
<th>Issue</th>
<th>Conventional design</th>
<th>Ecological design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological, cultural, and economic diversity</td>
<td>Employs standardized designs with high energy and materials throughput, thereby eroding biological, cultural and economic diversity</td>
<td>Maintains biodiversity and the locally adapted cultures and economies that support it</td>
</tr>
<tr>
<td>Knowledge base</td>
<td>Narrow disciplinary focus</td>
<td>Integrates multiple design disciplines and wide-range of sciences; comprehensive</td>
</tr>
<tr>
<td>Spatial scales</td>
<td>Tends to work at one scale at a time</td>
<td>Integrates design across multiple scales, reflecting the influence of larger scales on smaller scales and smaller on larger</td>
</tr>
<tr>
<td>Whole systems</td>
<td>Divides systems along boundaries that do not reflect the underlying natural processes</td>
<td>Works with whole systems; produces designs that provide the greatest possible degree of internal integrity and coherence</td>
</tr>
<tr>
<td>Role of nature</td>
<td>Design must be imposed on nature to provide control and predictability and meet narrowly defined human needs</td>
<td>Includes nature as a partner: whenever possible, substitutes nature's own design intelligence for a heavy reliance on materials and energy</td>
</tr>
<tr>
<td>Underlying metaphors</td>
<td>Machine, product, part</td>
<td>Cell, organism, ecosystem</td>
</tr>
<tr>
<td>Level of participation</td>
<td>Reliance on jargon and experts who are unwilling to communicate with public limits community involvement in critical design decisions</td>
<td>A commitment to clear discussion and debate; everyone is empowered to join the design process</td>
</tr>
<tr>
<td>Types of learning</td>
<td>Nature and technology are hidden; the design does not teach us over time</td>
<td>Nature and technology are made visible; the design draws us closer to the systems that ultimately sustain us</td>
</tr>
<tr>
<td>Response to sustainability crisis</td>
<td>Views culture and nature as inimical, tries to slow the rate at which things are getting worse by implementing mild conservation efforts without questioning underlying assumptions</td>
<td>Views culture and nature as potentially symbiotic; moves beyond triage to a search for practices that actively regenerate human and ecosystem health</td>
</tr>
</tbody>
</table>
1. SOLUTIONS GROW FROM PLACE
Ecological design begins with the intimate knowledge of a place. It is small scale and direct, responsive to local conditions and people. If we are sensitive to the nuances of place, we can inhabit without destroying.

2. MAKE NATURE VISIBLE
Making natural cycles and processes visible brings the designed environment back to life. Effective design helps inform us of our place within nature.

3. DESIGN WITH NATURE
By working with living processes, we respect the needs of all species. Engaging processes that regenerate rather than deplete, we become more alive. Making natural cycles and processes visible brings the designed environment back to life. Effective design helps inform us of our place within nature.
4. ECOLOGICAL ACCOUNTING INFORMS DESIGN

Trace the environmental impacts of design and use this information to determine the ecologically sound design possibilities.

Education for Sustainability, EDI
designs education programs for schools, organizations and corporations. The Ecological Design Education Network, EDEN, is an internship program for university design students. Sustainable San Domenico, a project of Education for Sustainability, uses site as a textbook in developing a comprehensive curriculum connecting ecology, design and spirit.

5. EVERYONE IS A DESIGNER

Listen to every voice in the design process. As people work together to heal their places, they also heal themselves.

From Ecological Design Institute, http://www.trope.com/edi/aboutedi.html

For Attachment 2, see Van der Ryn and Cowan, 1996, Ecological Design, p. 70.
General Guidelines for Student Projects

The student projects are a major component of the course. They address the central question facing Lincoln or any city — the sustainability of current patterns and trends in land use and urban development. The results and products of the projects are designed to contribute to the ongoing debate regarding the future of Lincoln. Because decisions made by city leaders during the next two years will strongly influence the development of Lincoln for the next 50 years or more, students have an opportunity through these projects to play a significant role in determining the future of Lincoln. To have a full impact, the quality of the projects must be high, and the expectation is that the quality will be high.

Project membership

With 27 students in the class, the goal is to have nine students in each project group, 7 enrolled for credit and 2 auditors. Responsibility for successful completion of the project lies with the students enrolled for credit. Auditors are actively involved in the project as resource people, contributing ideas, information, and critiques, but are not involved in the writing of the report or the oral presentation of results.

After each student's first choice of a project is determined, we will attempt to balance the number of students in each project through negotiations. If an imbalance still exists, lots will be drawn to determine the final group membership.

Project schedules

Each group is responsible for establishing a time line and intermediate goals for their project. In-class time for project groups to meet is scheduled about every other week (see syllabus), but the bulk of work on the project is expected to occur outside of class. This may include meetings of the project group or parts of the group. In-class time will be particularly useful for interactions among the three project groups.

The written project report is due one week before the oral presentation. Due dates are April 14 for the ecological footprint analysis written report, and April 21 for the indicators and planning process reports. The reports should be about 15 to 20 pages plus appendices.

Oral presentations of project results are scheduled April 21 for the ecological footprint analysis, and April 28 for the indicators and planning process groups. The presentations will be given to the class plus a panel of four or five experts from outside the class. Panels will be composed of people who are in a position to use the results of the studies (e.g., city planners, politicians, citizen activists, university faculty). Panel members will receive a copy of the written report prior to the presentation.

Evaluation

The written reports and oral presentations will be evaluated by the panelists and by the four primary instructors for the course. Evaluation criteria will include clarity, thoroughness, intellectual rigor, and applicability of the final products. Project grades will be based on these evaluations.
Introduction

Concern over the relationship between humans and the land they occupy has gone on for thousands of years. Plato and Lau-tsu, among others, were the first to write about issues of human population and land use. Their ideas were further developed in the 18th century with the writings of Quesnay and Malthus, who laid the framework for formal assessments of human carrying capacity. Recently, with the potential realization of 10 billion people on earth by 2050, the question of whether the earth can support the anticipated load of the human economy has become a central theme in the area of ecological economics.

Carrying capacity is defined as the maximum population of a given species that can be supported indefinitely in a specific habitat without permanently impairing the productivity of that habitat. While a useful tool for most species, it has some serious drawbacks when applied to humans. First, human carrying capacity is as much a function of cultural factors (which influence consumption) as it is to ecological productivity. Second, the concept that human populations live in isolated regions cut off from trade doesn’t make sense in our current global economy. Somehow, there has to be a better way to measure the ecological ‘load’ a human population has on the natural resource base.

Ecological Footprint Analysis

Enter ecological footprint analysis. Ecological footprint analysis is a method for estimating the amount of productive land needed to support a particular population. In essence, it turns the carrying capacity concept on its head by inverting the ‘people to land’ ratio to a ‘land to people’ ratio. In addition to the land physically occupied by a person or a group, the analysis takes into consideration the additional land required for commercial and transportation infrastructure, food and fiber production, waste assimilation, water supply, energy, and maintenance of the global biosphere. The total constitutes a group’s ecological footprint. The following thought experiment illustrates the footprint concept nicely:

Imagine enclosing New York City under a huge plastic dome. Within a short time, the air grows stale and polluted, sewage and garbage accumulates, and supplies of clean water, food, raw materials, and energy are depleted. The vast accumulation of technology, capital, and knowledge within the dome cannot keep the city functioning in isolation from the surrounding ecosystems. Now imagine expanding the dome to cover some adjacent farmland, forests, and watersheds. How much productive landscape must be included under the dome to sustain the city? Consider that the New York City watersheds alone cover 1,900 square miles. The residents of a city depend on the outputs of a land area far greater than that which they physically occupy.
How do you do an Ecological Footprint Analysis?

Conducting an ecological footprint analysis is a three-step process. First, an estimate of an average person’s annual consumption of particular items is determined by dividing total consumption by population size. This information is typically found in regional or national databases and is simplified by splitting consumption into five categories: food, housing, transportation, consumer goods, and services. To account for trade, consumption is corrected for net imports (which would increase the footprint).

The next step in a footprint analysis is to estimate the land area appropriated for the production of each major consumption item. This is done by dividing average consumption of an item by its average productivity or yield within different land-use categories (energy, built-up, cropland, rangeland, pasture, forests, and gardens). Calculating an energy-land equivalent is a major part of this step, and can be done a number of ways.

Finally, the total ecological footprint is computed by summing all the land-use areas appropriated by all consumption items. This number can be either expressed as a per capita footprint or multiplied by population size to get the footprint for the study population.

Ecological Footprint of the U.S.

Results from a footprint analysis indicate that the U.S. ecological footprint is considerably larger than the total area of productive lands within U.S. boundaries. Energy use constitutes the largest portion of the footprint, and imports of energy and other materials show that a significant portion of the footprint lies outside U.S. borders. This suggests that the carrying capacity of the United States—the number of people that can be supported in perpetuity at current levels of consumption—has been exceeded.

Sprawl and other forms of development that degrade landscape functions are reducing U.S. carrying capacity at the same time that the U.S. population is rapidly increasing. This imbalance between population and carrying capacity indicates that land use decisions at local levels need to consider the national and global context.

The Project: An Ecological Footprint Analysis of Lincoln, Nebraska

- **Objective:** The objective of this project is to conduct an ecological footprint analysis of Lincoln, Nebraska.
- **Product to be developed:** Students working on this project will create an instruction manual on how to conduct an ecological footprint analysis for a city using Lincoln as a case study. As a result, the final product will be different from a standard term paper, though some discussion of the footprint size and recommendations for decreasing the city’s footprint will be expected. Our intention is for this manual to be used as a ‘how to’ resource for other groups in the future.
- **Skills needed:** No special skills are necessary to conduct a footprint analysis. It looks pretty technical, but beyond basic math skills plus some rudimentary knowledge of a computer spreadsheet program, there’s really nothing to it. What is needed, however, is a journalistic drive to hunt down data for different consumption categories.

Resources


To estimate your personal ecological footprint, go to: http://www.wwfcanada.org/footprints/index.shtml
Creating a Sustainable London: London's Metabolism (text-only)

THE METABOLISM OF GREATER LONDON, POPULATION 7,000,000

These figures quantify London's resource use. They are listed here to emphasise the huge potential for greater resource efficiency. London's waste output could be used as a significant resource for new recycling and energy efficiency industries.

1) INPUTS (tonnes per year)

<table>
<thead>
<tr>
<th>Resource</th>
<th>Total (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel, oil equivalent</td>
<td>20,000,000</td>
</tr>
<tr>
<td>Oxygen</td>
<td>40,000,000</td>
</tr>
<tr>
<td>Water</td>
<td>1,002,000,000</td>
</tr>
<tr>
<td>Food</td>
<td>2,400,000</td>
</tr>
<tr>
<td>Timber</td>
<td>1,200,000</td>
</tr>
<tr>
<td>Paper</td>
<td>2,200,000</td>
</tr>
<tr>
<td>Plastics</td>
<td>2,100,000</td>
</tr>
<tr>
<td>Glass</td>
<td>360,000</td>
</tr>
<tr>
<td>Cement</td>
<td>1,940,000</td>
</tr>
<tr>
<td>Bricks, blocks, sand and tarmac</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Metals (total)</td>
<td>1,200,000</td>
</tr>
</tbody>
</table>

2) WASTES (tonnes per year)

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Total (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial and demolition</td>
<td>11,400,000</td>
</tr>
<tr>
<td>Household, civic and</td>
<td>3,900,000</td>
</tr>
<tr>
<td>commercial wastes</td>
<td></td>
</tr>
<tr>
<td>Wet, digested sewage sludge</td>
<td>7,500,000</td>
</tr>
<tr>
<td>CO2</td>
<td>60,000,000</td>
</tr>
<tr>
<td>S02</td>
<td>400,000</td>
</tr>
<tr>
<td>NOX</td>
<td>280,000</td>
</tr>
</tbody>
</table>

LONDON'S ECOLOGICAL FOOTPRINT

London's ecological footprint, following the definition by Canadian economist William Rees, consists of the land area required to supply London with food, fibre and wood products, and the area of growing vegetation needed to reabsorb London's CO2 output:

<table>
<thead>
<tr>
<th>Component</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>London's surface area:</td>
<td>390,000</td>
</tr>
<tr>
<td>Farmland used @ 3 acres/person:</td>
<td>21,000,000</td>
</tr>
<tr>
<td>Forest area required by London for</td>
<td></td>
</tr>
<tr>
<td>wood products = 0.27 acres/person:</td>
<td>1,900,000</td>
</tr>
<tr>
<td>Land area required for carbon</td>
<td></td>
</tr>
<tr>
<td>absorption (equal to acreage</td>
<td></td>
</tr>
<tr>
<td>required for fuel production and</td>
<td></td>
</tr>
<tr>
<td>biomass)</td>
<td></td>
</tr>
<tr>
<td>= 3.7 acres/person:</td>
<td></td>
</tr>
<tr>
<td>Total London ecological footprint</td>
<td></td>
</tr>
<tr>
<td>= 125 times London's surface area:</td>
<td>48,900,000</td>
</tr>
<tr>
<td>Britain's productive land:</td>
<td>52,000,000</td>
</tr>
<tr>
<td>Britain's total surface area:</td>
<td>60,000,000</td>
</tr>
</tbody>
</table>

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Last Updated May 14 1997
Sustainability Indicators for Lincoln

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What are indicators?

Bits of information that highlight what is happening in a larger system. They are small windows that together provide a glimpse of the bigger system. Indicators ideally do more than merely provide information. They are intended to inspire and provoke action. Community indicators can help us understand if we are headed in the direction we think we are, and they can help us see what kind of world we are creating for future generations. Sustainability indicators provide feedback on the overall health of Lincoln. From these indicators we learn how the community is doing and some detailed understanding why.

The indicators chosen for other communities cover a range of environmental, population and resource, economic, youth and education, and health and community issues. A number of resources will be made available to you as a starting point (see attached reference list). Your review of other work in this field will provide a starting point. It is important that these resources be seen as that and no more. Each community will have its unique issues and those involved in shaping the indicators should think creatively about indicators that represent the kinds of “windows” that are relevant to Lincoln. Challenge yourselves to create your own indicators. Farmers are aware of subtle changes in their landscape. City people often are not. David Orr, a noted ecologist, calls this "ecological illiteracy." Ecological illiteracy unfortunately breeds a dependence on the professionally trained. Conversely, urbanites are intimately in contact with the structure and function of their urban environment in ways that only they can describe and suggest remedies for. In an attempt to reverse the trend of disconnection from our rural and urban landscapes and help plan for change in their own communities, the public must be much more involved in decision-making than occasionally voting at the polling booth, or consuming goods at the supermarket.

People need to develop and use their own indicators if they are to be effective. A truly sustainable community will depend on understanding and active participation of its members. There will always be a role for professional technical assistance, but only community members can ultimately make the decisions and implement all significant community plans and projects.
Getting Started

The following steps have been outlined by other groups who have been through this process for their city. While not set in stone, we envision the group will work through the following steps in this project.

- Review existing models
- Draft a set of proposed indicators
- Review the proposed list of 20-40 indicators
- Research data to assign indicator values
- Publish and promote the report
- Outline a plan for sustaining the indicator review

Criteria for Indicators

Relevant. They fit the purpose for measuring, telling something about the system you need to know.

Reflect community values. The crucial role of indicators is communication. Perhaps more important than providing data, indicators illustrate community values and elicit reactions.

Attractive to local media. The press publicizes them and uses them to monitor and analyze community trends.

Statistically measurable. Data exist that are relevant to this geographic area, and preferably comparable to other cities. If data are not readily available, a practical method of data collection or measurement exists or can be created.

Logically or scientifically defensible. Understandable rationales exist for using the specific indicator and for drawing general conclusions from it.

Reliable. You must be able to trust what the indicator shows. In addition, indicators should be measured consistently over time, so that you have comparable data.

Leading. Indicators must give you information while there is still time to act. Carbon emissions is an example of an indicator that provides information in advance. Global temperature change, “global warming” is the concern, but because of lags in the response of the physical system and short-term fluctuations that mask long-term trends, temperature may respond only after decades of atmospheric change.

Policy-relevant. Does the indicator have relevance for policy decisions for all stakeholders in the system, including the least powerful ones? Can anything be done to affect the indicator? Should it be included anyway to suggest improved policy responsiveness?
Ground Rules and Expectations

Groups for the projects will be a bit bigger than we had originally envisioned. It will be very important that group members work synergistically on each of the projects. We have a rich diversity of students in the class who bring a range of perspectives to each of the projects. We will want to draw on their expertise in working on the Sustainability Indicators for Lincoln project. It is also important that we not just develop a list of indicators but also to assess the state of the Lincoln community using the indicators developed by our class. Our end product will be a meaningful set of indicators, assessment where Lincoln sits on a continuum of sustainability and a report summarizing the results of the analysis.

Information Resources


A comprehensive, user-friendly, step-by-step guide to aid communities of all kinds in developing new measures of their overall health and well-being. The Handbook is designed to support the growing indicators movements as local government and business and grassroots leaders seek better ways to assess progress. It draws on the experience of dozens of projects around the United States, and presents how-to's and resources for tailoring an indicators project to the specific needs of a community.

Indicators of Sustainable Community. 1998. Sustainable Seattle, 73 pp. (www.scn.org/sustainable/)

This is the third indicators report for Seattle and King County since 1993. The report summarizes the state of Seattle's move to a more sustainable community through comparing the results of the indicators summary with the past two surveys. This is an excellent example of a how and why this list of 40 indicators were chosen and how they are used by decision makers in Seattle.


This publication provides an introduction to indicators and discusses how they can be used to measure progress toward community sustainability, how to educate other residents and to mobilize additional community members to join in community sustainability efforts.
COMPREHENSIVE PLANNING WORKSHOP
Urbanization Course, Spring 1999
W. Cecil Steward

Using the Lincoln/Lancaster County Comprehensive Plan as the study vehicle, this workshop will analyze, and propose changes to, the content and use of the Comp Plan as a vehicle to achieve sustainable development for a growth oriented urban community.

We will analyze the current document and its use, as well as the proposed changes for 1999, for both content and regulatory effectiveness for a) unsustainable policies and plans, and b) deficiencies which might result in better policies and plans for a sustainable development pattern. The analysis process will begin with discussions and assessment of the current pressures of growth facing the City and the County.

The workshop will recommend amendments to the Comprehensive Plan which would guide the growth and development of the City and the County toward a more sustainable future.
Dear (Mayoral Candidate):

Following our recent meeting concerning planning issues within and surrounding the City of Lincoln, I assembled a small focus group of knowledgeable individuals to discuss recommendations for your consideration. The individuals invited to participate were: Professor Gordon Scholz (Chairman of the UNL Department of Community & Regional Planning, Member of the Lincoln Urban Design Committee, and Chair of the Lincoln Preservation Association), Professor Joseph Luther (Senior member of the CRP faculty, Former Lincoln/Lancaster County Planning Commissioner), Professor Mark Hoistad (Member of the Architecture faculty, Former Lincoln/Lancaster County Planning Commissioner), and Steve Larrick (College of Architecture Coordinator of Community Outreach Programs, Director of the UNL/DED Urban Community [i.e., neighborhoods] Improvement Program).

We agreed that the following ten issues are of paramount importance to the future of Lincoln. Although we are offering you this list in an order of priority, we wish to emphasize that all ten headings are inextricably linked with each other, and that they should not be considered, or discarded, for action as wholly independent issues.

1. Antelope Valley
Irrespective of the potential of this project for an aesthetic improvement to the center of our city, the economic value of the property and infrastructure which will continue to be at risk, not to mention countless lives, from the potential of dramatic flooding, should be sufficient to justify urgent attention to this project. Secondarily, but of dramatic urban design potential, the proposal which has evolved presents a good mixed-use plan for, and potentially cost effective (to the City) means of center-city land assembly for new development, which would anchor the eastern edge of downtown in a complimentary way to the north (University), south (State Government), and west (Haymarket) sectors. Every effort possible should be taken to assure that this project will not be seen, either publicly or politically, as "in competition" for funds for the Beltway.

2. Downtown Sub-area Plan, Linked to a Comprehensive Transportation/Traffic Plan
Everything on this list, and every forthcoming proposal to accommodate Lincoln's anticipated growth, has an implication for the City's current public transportation, streets and thoroughfares, and walkways and bikeways. The recent outcome of the controversial change of traffic on P Street was a call, by DLA and others, for a Downtown Sub-area Plan which would include planning for all the downtown related traffic. The information and leadership fiasco over P Street should be ample graphic evidence that a) the public cares a great deal about street planning, b) changes to any major thoroughfare will impact many other issues and locations, c) early and continuous information, and the opportunity to have a voice in the planning, is critical (both practically and politically), and d) civic leadership is critical and essential if change is to be accommodated in an efficient, cost-effective and timely manner. Other systemic justifications for the urgency of this effort are: plans for the Old Federal Courts/Post Office building; potential re-use of the Lincoln Benefit Life buildings; the proposed changes and re-hab of Centennial Mall; the Market Place concept for P Street; parking proposals for the Haymarket; the plans at the East end of P Street for the Antelope Valley development; UNL's new master plan; neighborhood planning in the outer-
ring around the central core; disposition and use of the State Fairgrounds; and, the emerging "employment centers" at the edges of the City.

3. Stevens Creek Watershed
No development should be allowed in this geography until the entire watershed is analyzed for the environmental impacts, i.e. flood, wetlands, water quality, ecosystems, natural landscape and habitats, and until the fiscal impacts of the costs of services for potential development in the watershed can be determined. It was a mistake to allow the Lincoln Benefit Life to be approved before these assessments could be made -- no other projects should be approved in the meantime! The problems currently being faced in the Antelope Creek, Salt Creek and Wilderness Park areas are microcosms of the future, uncontrolled development of Stevens Creek.

4. Wilderness Park
No other development in the vicinity of Wilderness Park should be approved until the Sub-area planning process, now underway, is complete.

5. County-wide Environmental Zoning
As in the case of Stevens Creek, the Lincoln/Lancaster Comprehensive Plan should include the results of a county-wide environmental assessment in the form of "no-build" zones for the protection of sensitive watersheds and habitats. Many of the current and future problems being created by the willy-nilly approval of spot acreage developments surrounding the city could be forestalled with such a zoning tool.

6. Acreage Development Controls
Many acreage development proposals are being approved which are suspect for environmental, water quality, sewage treatment, and access-to-services (such as schools, fire protection, and security) conditions. There currently is no will and very limited tools available to the Planning Commission to recognize the long-term problems for the City of Lincoln by being ringed with low-density, poorly infra-structured, and in many cases, dubious quality-of-construction developments.

(Note: Items 3, 4, 5, and 6 are very interrelated, and could be approached through a more detailed approach to the County Comprehensive Plan, which should also make specific plans for the future conditions of each of the small communities, as well as the roads network, and environmental assessments throughout the County.)

7. Central City Development Incentives
At present, the largest incentives for developers/builders occur at the edges of the City (i.e., least expensive land, subsidized infrastructure, building codes which have been written around new wood-framed construction, new schools and extended public services). There are no significant incentives to cause developers to seek central city projects for increased densities, more pedestrian, mixed-use, sustainable community alternatives to low-density housing/shopping center sprawl at the edges of the city. Last year's revision to the CompPlan established areas recommended for higher density "Urban Villages", but up to now no developer has advanced a proposal to accomplish the goal.

8. Downtown Lincoln Association's Proposal to Establish a "Community Development Corporation"
Earlier in 1998 the DLA formed a study committee to investigate the desirability of establishment of a CDC for the facilitation and promotion of center city development projects. Several successful CDC's can be found in other cities around the country. All the successful ones are organized in some non-profit manner of partnership between public and private interests. Most are highly
effective, especially if the Center includes a professional component for urban design studies. This proposal will raise the question of relationships between a CDC, and the Planning Department, and the Urban Development Department, and each with the other two.

9. Beltway Proposal
The cost-effectiveness of either the "South Beltway" or the "East Beltway" has not been carefully and publicly analyzed to date. None of the existing data assembled by the consultant (at least that which has been available to the Planning Commission) justifies, from a traffic relief goal, the enormous cost of the proposed project. One can only assume that the principle purpose of this new highway is to draw more low density development into the corridor between the existing service boundary and the beltway location. The pressure is already building for expensive extension of the infrastructure, all at public expense, toward the directions of the corridor. Numerous examples exist across America, in other growth-prone cities, of the mistakes and consequences of edge highway construction -- almost no discussion has occurred to inform the public in Lincoln of the consequences and the trade-offs.

10. Development "Cost of Services Fees"
At the moment, some developers pay fees, others do not, some pay more, some pay less. The practice is, apparently, for the City and Developer to negotiate. This practice seems to invite intense politicization of the process of "shared costs" for new development infrastructure. An open, annually reviewed, transparent and equitable system of fees seems essential if growth, within the means of the public budget, is to be accommodated. We wish to caution, however, that a correlated plan for the provision of affordable housing and equitable neighborhood services is an important component of a system of developer fees.

Other Issues:
• Public Access to the planning process
  Planning Commission meetings should be more convenient to the public (i.e., 4:30pm, not 1:00pm); more informative public presentations on issues of significant consequence with time for public comment; structured process for neighborhoods input; less Mayoral control of projects and plans
• Public information programs which present balanced pros and cons on sustainability, sprawl, densities, mixed-uses, traffic calming, public transportation systems, etc.
• Building partnerships and coalitions among the developers, the Chamber of Commerce and the media for balanced growth and high quality of community
• Protecting the Views and Entrance Corridors to our City
  With the recent development around the new 180/27th Street Interchange, we are rapidly headed toward the ugly appearance of the 180 entrances to Omaha! The CompPlan should designate greenbelt corridors along 180 throughout the County, as well as Hiway 2 and the other state roads into Lincoln.
• A County-wide "Cost of Services Study" should be performed, with an intent to balance growth between the loss of productive agricultural lands and the expense of low-density growth at the edges of the City. National models exist for similar studies.
• Interaction with regional planning and State policies
  Lincoln should take the lead in coordination initiatives with other SE Nebraska governments to develop coordinated regional plans for the protection of natural resources (i.e., the Platte River Corridor, and other connecting watersheds). An assessment of State public policy should be undertaken for appropriate enabling authorizations to facilitate regional planning.
• Planning Director's Position
  A careful and deliberate national search for the most qualified, creative, balanced-growth oriented professional available should begin immediately.
Process Recommendations:

1. **Community Visions of Lincoln's Future**
The Mayor could, and should, be an energetic missionary for an extended process which would marshal the public's opinions and voices about Lincoln's future. He/she should be the most visible and vocal advocate for "smart, high-quality" growth. Planning in Lincoln has been captured by special interests and paid professionals; more community-wide voices are needed. There are very effective models of community visioning at work in other communities in America. The College of Architecture could be of effective assistance in planning and facilitating such efforts. Links should be forged between visioning, planning, budgeting and development.

2. **Planning Resource Set-aside**
A permanent fund should be organized to support on-going planning related efforts, such as visioning, consultants, special sub-area planning projects, research, etc. One might imagine a portion of the "services fees" being designated to a revolving fund, as one way of funding such efforts.

3. **Oath of Office for Existing and Subsequent Appointees to the Planning Commission**
A formal "public commitment" oath process, could in some cases diminish the current attitude that Commissioners are appointed to represent special interests.

Please be assured that I, and many of my colleagues at the College of Architecture stand ready to assist you, in the most apolitical way possible, to improve and beautify our City. Many others before us have made incredibly valuable plans and decisions about Lincoln as a special, quality-of-life place. We can, and should, do more to build upon their fine and courageous efforts, while resisting the unsustainable, expedient, and narrow, self-interest plans.
Week 3

Lectures and readings in earlier classes have emphasized the relationship between structure and function in landscapes, and the effect of development on structure and function. A main theme this week is the relationship between structure and function in suburbia. How does the structure of a typical new suburb influence its function as a community and a place to live? An article about New Zealand suburbs provides the basis for a lead-off discussion of this topic.

The structure of development in Lincoln NE, both old and new, is reviewed and discussed in a slide presentation by Mark Elliot, a member of the suburban documentation project. Examples from other communities throughout the United States are also shown.

Although the trend is toward ever bigger houses, a good book for exploring the alternatives to "starter castles" is The Not So Big House by Sarah Susanka.

Home buyers often have little choice in the type of home and neighborhood they purchase because developers offer little variety in what they build. Co-housing is an approach that gives the buyer control over the type of community that is constructed.

The final portion of this class period is used to form the three student project groups, and for initial meetings of the groups with their faculty advisor.

The reading in Under the Blade is a case study of Oregon’s land use regulations and an assessment of the strengths and weaknesses of this pioneering statewide effort. It is read early in the course to provide students with a baseline for evaluating the land use programs of other localities.

Materials in this section:

Journal article: Reducing crime and the fear of crime by reclaiming New Zealand’s suburban street (first page only)
An introduction to Sonora co-housing
Newspaper article: Duo documents city’s urban sprawl
Reducing crime and the fear of crime by reclaiming New Zealand's suburban street

Hein Doeksen

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Abstract

People stay away from places where they don't feel safe. Today they tend to stay away from their own streets, the bones of the community. Many residents in New Zealand and Australian suburbs do not know their neighbours' names and hardly recognise their neighbours' children. In Australia, the alienation of residents from their neighbourhood is of such dramatic proportions that the Prime Minister announced a national committee whose agenda focuses on the question: Why are Australian suburbs so uninviting and hostile? In New Zealand, the government doesn't feel itself responsible for the decay of the suburb. Planning and urban design is not on the agenda since even state housing is seen more as a nuisance than a tool. Design restrictions are felt as limitations to the free market principle of the survival of the fittest (richest). What's wrong with the New Zealand suburb, is probably what's wrong with many suburbs all over the world. People are fencing themselves off, even literally; they don't trust the public space any more. What once formed the lifelines of a community are now barriers in between. This paper concentrates on the important role of social surveillance in the neighbourhood street as one of the proven remedies for fear and crime, and will suggest how this social surveillance can be improved through planning and design. It will also look at design opportunities for the restoration of the feeling of communal attachment to a place: this is particularly important for the revival of the 'communal responsibility' through 'shared ownership' which in turn can activate better social surveillance. © 1997 Published by Elsevier Science Ltd.

Keywords: Neighbourhood streets; Safety; Traffic

1. Introduction: many questions to be answered

Despite a clean, green and safe image, New Zealand suburbs and townships are suffering from a rapid increase in domestic and public crime. The news media, accustomed to exploiting horror and violence as a means of increasing ratings is creating a new enemy for their consumers: the unknown neighbour, 'the stranger in the street'. So, up go the fences, the doors stay closed and children stay off the streets.

Fear as a catalyst for crime is well known, but seldom dealt with. That crime is linked to social isolation has been proven and thoroughly studied. 'There is a growing feeling that the world beyond the front door is a hostile world of vandalism and aggression, where we feel threatened rather than at home. Yet, to take this widespread feeling as the point of departure for urban planning would be fatal.' With this statement, Herzberger (1982) went one step further than Jacobs (1961), Newman (1972) and Jeffrey (1977), the founders of the 'Crime Prevention Through Environmental Planning and Design' movement, by not only breaking away from the
An Introduction to Sonora Cohousing

Ever wonder if there was a better way to live?

We did. A lot. That's why we created Sonora Cohousing. For us, the typical wall-of-garages, run-into-your-neighbor-once-a-year, car-dominated neighborhood just doesn't cut it. We knew we could do better.

"Most of us actually know what we want in a neighborhood-- we just don't know how to get it, because developers have been building the wrong thing for 50 years."

--Newsweek cover story, May 15, 1995

Our Mission Statement puts it this way:

We believe that today's neighborhoods have in large part served to isolate people from one another and encourage alienation from ourselves and our communities. Together we seek to create a neighborhood which strikes a balance between public and private--respecting individual privacy while encouraging social interaction. In pursuit of this goal, we participate in the ongoing design and construction of our community -- and then take an active part in its ongoing management. This community of adults and children is not built around an ideological principle; rather, we seek a diversity of backgrounds, ages, and opinions, with our one shared value being the commitment to working out our problems and finding consensus solutions which satisfy all members.

"We want a safe and relaxed environment for children to grow up in and adults to interact. A friendly, homey neighborhood where community involvement is welcomed and encouraged but privacy and personal desires are respected."

--Mark, Leslie, Casey & Evelyn Hunten, Group founders

How will this make our lives more satisfying?
Here are just a few of the many ways we will benefit by living in a real community:

- **We each individually own a great house in a great neighborhood**, designed for people rather than cars.

- **We seek small-town values in an urban setting** by emphasizing a return to tolerance, respect, comfort, belonging and trust without the constrictions present in many traditional communities. The neighborhood will be designed for daily front-porch-style interaction.

- **We will have sense of security without gates, alarms, and barbed wire.** True security can come from design rather than gadgets. In our community, neighbors watch out for neighbors, and someone is around all the time—an automatic Neighborhood Watch.

- **It will be a nurturing place for children and an easier place to be a parent.** Kids play at each other's houses without elaborate arrangements, kids have many other adult role models to look up to; there is always something for kids to do, not just sit alone and watch TV.

- **We have the choice to be social when we wish, or private when we wish** by striking a balance—existing neighborhoods are too private; other intentional communities are too social; we can get the best of both worlds.

- **We empower ourselves** by making our own decisions in design, construction and governing.

- **We espouse democratic town-hall ideals.** Win-win solutions can be the norm, if we all govern ourselves to seek what's best for the community.

- **There will be a neighborly support system for people in times of need.** During life crises many people feel they have no one to turn to for help. In our community, people know that if they help someone in need, they, too, will be helped when they need it.

- **We seek environmentally-friendly living** by constructing buildings in efficient ways which respect the environment such as clustered houses, alternative building materials, and energy efficiency.

"I'm looking for the neighborliness of traditional neighborhoods without the difficulties that used to exist when people had no choice but to stay put in their neighborhoods and towns."

--Grant McCormick, Sonora Cohousing Member

What makes us think we can do this?

We may be pioneers, but plenty of others have broken the trail ahead of us. There are
already 26 similar communities in existence in the US, and 26 more that will be finished this year. A supportive network exists to help the rest of us get built. Our developer, Jim Leach, is the most experienced cohousing developer in the country. His development firm, Wonderland Hill has already built 5 successful cohousing communities in other parts of the country. This is a growing movement.

How are we making this real?

We have formed a non-profit corporation, developed a business plan, and are in the process of contracting with builders, architects and other professionals. In collaboration with Jim Leach we have optioned a 4.7 acre site on the north side of Roger road just West of First avenue. And, of course, we are seeking new members like you to help us all achieve our dream together.

If you would like to get involved...

We welcome you to attend one of our monthly slide presentations, attend an orientation, and become an Associate Member. Please call (520) 570-6052 for recorded information on upcoming events, and leave a message for us. We will call you back to answer questions and get you started. Or send email to Sonora Cohousing member John Palmer And he'll get in touch.

Want more information?

- Call our Sonora Cohousing Hotline to hear upcoming events and to leave a message at (520) 570-6052.
- Send email to Sonora member John Palmer.
- Check out the Cohousing Network web site for other links and general information.
Duo documents city’s urban sprawl

BY CINDY LANGE-KUBICK
Lincoln Journal Star

When Mark Elliot and Frank Edgerton Martin look south from 40th Street and Old Cheney Road they don’t simply see houses. They see a legacy. “It is the history of our time,” Martin said of the suburban landscape before him. “But it’s so familiar we never notice it.”

From this hill, hundreds of rooftops spread to the horizon — shingled sentinels rising from acres of bluegrass where rows of corn once stood. “This is just an amazing vista,” said Martin, a landscape architect from Minneapolis. “Lincoln is becoming a big, sprawling city.”

Martin and Elliot, a local landscape photographer, have spent the past year studying Lincoln’s growth as part of the Suburban Documentation Project. Using photographs, narrative and a $5,000 grant from the Nebraska Humanities Council, they hope to stimulate public discussion about the places 54 percent of Americans now live — the suburbs.

“Our slogan is, many people make fun of suburbs, we try to understand them,” said Martin, tongue only slightly in cheek. What they see here, they say, is a city growing around the fringes, eating up farmland, pushing its limits.

“It’s what they see everywhere they go: McSuburbs from Seattle to Savannah to St. Louis. Our Towns becoming Any Towns. Places where Applebee’s and Barnes and Noble have become community centers in a mass-market culture devoid of a sense of place.

“Homogeneity is really the rule of new growth,” Elliot said. “There’s little that distinguishes one development from the next, except perhaps the sale price.”

Lincoln is typical of most communities — neither the best nor the worst, they say. The city has avoided what they see as a black eye on modern suburbs — the gated community. But, they note, it has not been home to any progressive developments either, like Prairie Crossing near Chicago, where there is wetland restoration instead of drainage ditches, community gardens and dense housing designed to save space.

Martin began studying the new suburbs in earnest eight years ago during a drive from Minneapolis to a small town some miles away. The city never ended, he said. It just became scores of sprawling suburbs swallowing up everything in their paths. The man with degrees in philosophy and landscape architecture was fascinated.

Since then, he and photographer Chris Faust have documented suburbs in Des Moines, Chicago, Milwaukee, Denver, Seattle and Portland.

Elliot heard about their work and signed on to photograph growth here, where 814 building

More on DUO, Page 5B
Duo/Documents the urban sprawl of city

Continued from Page 1B

permits were issued for single-family homes in 1997, along with 243 permits for townhouses, 51 for duplexes and 81 for apartment buildings.

Elliot has traveled to several other mid-sized cities around the country, setting up his tripod and capturing what he sees with an old-fashioned Deardorf 8-by-10 camera.

On Thursday, the pair showed slides of various suburban developments, including Williamsburg in Lincoln, at a brown bag lunch. Some of the local photographs will become part of the Nebraska State Historical Society’s archive.

They flashed photos of strip malls and million-dollar multi-gabled homes — “Houses on steroids,” Martin said — modern four-lane roadways lit by old-style street lights and gas stations designed to look like colonial mansions.

On a Friday morning drive down Pine Lake Road, Martin, who hadn’t visited the spot for more than a year, was amazed at what he saw.


As Sally, a commercial center with 3,000-plus parking spaces spreading like a vast concrete lawn far before it.

And everywhere, the sights and sounds of construction.

On a Williamsburg cul-de-sac, a saw whirred in the crisp morning air, slicing slivers off tan-colored bricks. Bricklayers in coveralls stood on scaffolding, transforming the facade of a 1½-story custom home.

Schultz Construction builds eight to 10 homes a year in Lincoln, said owner Bob Schultz, and quite a few are in Williamsburg, a development he praised for its mix of housing types, green spaces and commercial development.

“It’s a very nice community atmosphere,” Schultz said, pointing to a bike path running through the development with a grassy commons area on either side. “I think the developer has done a really good job.”

And people are lining up to make the move to houses that begin at $150,000 and rise to well over $300,000.

“I think the developer has done a really good job.”

David Smith

“I always ask the question, ‘Where do you go next?’”

Elliot and Martin wonder, too.

Martin kicked the toe of his black loafer against the clay soil of a still-empty lot, grown over with weeds and wildflowers.

“See the sod line,” he said, noting the contrast between this space and the lot next door, laid out with fresh bluegrass.

And everywhere, the sights and sounds of construction.

On a Williamsburg cul-de-sac, a saw whirred in the crisp morning air, slicing slivers off tan-colored bricks. Bricklayers in coveralls stood on scaffolding, transforming the facade of a 1½-story custom home.

Martin said, as documenting it and allowing people to decide for themselves whether they like what they see.

Thus far, Elliot has captured 130 photographs of Lincoln’s expanding suburbs, mostly on the south side.

The project will continue around the rest of the city’s fringe, he says, becoming a photographic documentary of Lincoln’s present.

And, one day, its past.
Week 4

The primary theme this week is economics. A lecture by Bruce Johnson of the Agricultural Economics Department describes the tight integration of economics and law in land use decisions. Also, many ecosystem services are not accounted for by the market, and the negative externalities of land use decisions are often significant.

An important aspect of the economics of development is addressed in a lecture by Kip Hulvershorn of the Community and Regional Planning Department. Although residential development is often promoted as a way of increasing the tax base, new residential developments can cost more in services than they provide in taxes. The mix of development (residential, commercial, industrial, agricultural) is critical in determining the effect of new development on the tax burden of established residents.

The class also briefly addresses the topic of population. Rapid growth of the U.S. population is an important contributor to land development. Rapid increases in world population are linked to U.S. population through immigration. World population growth rates and patterns are illustrated by showing a 6 1/2 minute video. The World Population Video is a graphic simulation of the history of human population growth. As the years roll by on a digital clock from 1 A.D. to 2020, dots light up on a world map to represent millions of people added to the population. More information on this video is available at http://www.zpg.org/Catalog/Items/item6.html.

National, state and local population statistics are provided as a handout, along with a thought-provoking article comparing patterns of human population growth with those of malignant tumors.

Readings from Under the Blade are Chapter 4, The Economics of Farmland Conversion, providing a more detailed look at the issue. A case study from Ventura County, CA considers the additional costs incurred by farmers on the urban fringe, and the effect of farm location and local land use regulations on land prices and conversion pressures.

Materials in this section:

Lecture outline and handouts: Economics of farmland conversion (Bruce Johnson)
Cost of community services studies (American Farmland Trust)
Newsletter article: Joint Senate committee listens to report on costs of sprawl
Population statistics handout
Journal article: Why are there so many of us? Description and diagnosis of a planetary ecopathological process (first page only)
I. Property Rights

- The institutional basis of individual market decisions and public policy
- Individual ownership of property (Fee simple)

**Bundle of Rights Concept**

Includes several rights which are divisible and can be exchanged separately.

**Six Basic "Sticks"**
- Sell
- Lease
- Use
- Give away
- Enter
- Refuse

- But individual property rights **NOT** absolute.

Several rights, or "sticks", have been retained by the government.

- **Taxation**
- **Eminent Domain**
- **Police Power**
- **Escheat**

Also, private encumbrances can exist.

- **Covenants, Easements, Liens**
II. The Market Process
In the context of property rights to resources and goods (whose value reflect utility, scarcity, and transferability) millions of individual decisions are made daily via the market process.

Concept of Marginalism
- allocation of time, dollars, or other resources so as to maximize utility.
- efficiency (or economizing)
  - Maximum output/unit of input (or)
  - Minimum cost/unit of output

Concept of Opportunity Cost
- Decisions based on utility (or income) forgone in best alternative
- Impacts land use allocations across:
  - Alternative uses
  - Space
  - Time

Concept of Highest and Best Use
Def: That use which will generate the greatest net return to the property over a reasonable period of time (highest net present value).

Determined by derived demand in the market (economic derivation)

H & B use must meet following criteria:
1. Physically possible
2. Legally possible
3. Financially feasible
4. Most productive

Typical land use profile surrounding urban center

![Highest and Best Use](chart.png)

Land Use Profile in Rural-Urban Transition Zone
III. When Market Allocation Leads to Market Failure

Types of Market Failure Associated With Land Use

A. Costs of Irreversibility Ignored
   - Farmland conversion is usually irreversible (economically).
   - Thousands of marginal decisions can lead to a perverse societal effect
     “Tragedy of the Commons”
     (or)
     “Tyranny of Small Decisions”

B. "Public Goods" not supplied by the market
   - Def: Any good that has:
     1. Nonrivalry: One person’s consumption of that good does not diminish amount available to other consumers, and
     2. Nonexcludability: If available to one person then it is available to others (whether they pay or not)

   - Some public goods
     - Sustainable base of U.S. Farmland,
     - Farmland "green belts" around urban areas
     - Biodiversity of the countryside
     - Wildlife habitat
     - Ground water recharge
     - Flood control benefits
     - Unique "view sheds"
     - Atmospheric benefits of green space.
     - Food producer - Food consumer connection

   - Public goods won’t be supplied by private (market) sector since no opportunity for profit. So, tends to be provided through unit of government or non-profit organization. Question: Who should pay? And how much?

C. Warped Distribution of Market Results
   - Economic winners and losers of decisions.
   - Questions of equity or fairness
   - Some examples:
     - Who pays for annexing new development?

     - Who gains (loses) from a zoning change to more intensive use?
- Who gains (loses) from zoning change to less intensive use?

- Should future generation(s) be considered in today's land use decisions?

D. Externalities
Also called: spillover costs, spillover benefits, unintended consequences, side effects, third-party effects.

Def: Disassociation of benefits and costs

Ex: External Cost

\[
\text{MC Social} \quad \text{MC Private}
\]

Market failure since:
- Not all costs considered.
- Market process produces too much of a good and sells it at artificially low price.

Ex: External Benefit

\[
\text{MB Social} \quad \text{MB Private}
\]

Market failure since:
- Not all benefits considered.
- Market process produces too little of socially-desirable product.

Land use examples of external costs:
- Excessive farmland losses from development
- Development leading to congestion and lower property values for surrounding land owners.
- Public cost of infrastructure associated with unchecked development.
- Environmental damage off site.

Land Use examples of external benefits
- Farmland retention in spite of short run economic pressures.
- Concentric development vs. linear and "leap frog" development.
- Green belt amenities.
- Synergistic interface of food production/consumption.

Implication(s) of externalities
Must internalize externalities to allow market to operate effectively.
A. Force accountability for spillover costs.

B. Allow appropriate benefits to flow to providers of societal benefits.

IV. THE POLICY PERSPECTIVE

The Policy "Tool Kit":

1. Conservation/Preservation Payments

2. Police Power
   - Zoning the primary mechanism.

3. Tax Incentives
   - Differential/preferential assessment (Property tax based on ag use rather than development potential).
   - "Greenbelt" tax laws may slow but seldom stop land conversion
   - Other creative forms.

4. Acquisition
   - Outright purchase
     Costly and often a negative perception of a “public” competing with the private sector.
-- Conservation Easements
Voluntary legal agreements allowing landowner to permanently limit or prohibit development on the property. Encouraged by favorable tax policy.

-- Purchased Development Rights (PDR)
Sale of development right to local government agencies, state government, or a non profit organization. Conservation easement then placed on the land.

-- Transferred Development Rights (TDR)
Landowners in “preservation areas” receive development right credits for not developing. In turn, they can be sold to developers for developing designated growth areas.
Towards A Comprehensive Land Use Policy

Basic Principles:

#1 Reconnect the urban community with its food source and the natural environment. ("Catch a Vision")
   - Direct food marketing.
   - Local ag connection for citizens.
   - Farmland (and Farm) protection policy.
   - Greenbelt amenities identified and measured.

#2 Develop a strong and consistent growth management policy that ensures orderly development while protecting and providing societal interests.
   - State level commitment with basic guidelines as well as technical and financial assistance.
     Ex: Minnesota’s 1997 Community-Based Planning Act

#3 Key on local initiative to build a land stewardship plan and program.
   - a broad-based coalition, partnering:
     Public / private
     Agriculture / non-ag
     Development / Preservation
     Short run interests / long run interests
     Youth / Adults
     Wage earners / wealth holders
Lancaster County’s Share of Nebraska’s Production of Selected Commodities and Years*

<table>
<thead>
<tr>
<th></th>
<th>Lancaster County Share of State’s Production</th>
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<th></th>
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<tbody>
<tr>
<td></td>
<td>1950-54</td>
<td>1995</td>
<td>Percent Change in State Share</td>
</tr>
<tr>
<td>Corn</td>
<td>2.0%</td>
<td>0.7%</td>
<td>-65%</td>
</tr>
<tr>
<td>Wheat</td>
<td>2.4%</td>
<td>0.9%</td>
<td>-63%</td>
</tr>
<tr>
<td>Hogs</td>
<td>1.3%</td>
<td>1.1%</td>
<td>-15%</td>
</tr>
<tr>
<td>Calf Crop</td>
<td>1.2%</td>
<td>0.7%</td>
<td>-42%</td>
</tr>
<tr>
<td>Average Change in County Share for the Four Commodities</td>
<td></td>
<td></td>
<td>-46%</td>
</tr>
</tbody>
</table>

*Nebraska Agricultural Statistics Series for Counties*
The Costs of Urban Sprawl

1. High cost and inefficient infrastructure.

2. Public service demands exceeding public revenues generated.

3. Increasing propensity for conflicting land uses.
   - Boundary friction multiplied
   - "Social Capital" lost

4. Socio-economic amenities of orderly land use lost.
   - Reduced Property Values
   - Lower Quality of Life

5. Socio-economic abandonment of urban cores.
Farmland Retention and Orderly Land-Use Policy
(Extending Societal Leverage)
COST OF COMMUNITY SERVICES STUDIES

DESCRIPTION
Cost of Community Services studies are an inexpensive, easy-to-understand way to determine the net fiscal contribution of different land uses to local budgets. Municipal records are reorganized to assign the cost of local public services to privately owned farm, forest and open lands, as well as residential, commercial and industrial lands. The result is a set of ratios that compare the annual income to the annual expenditures for different land uses.

COCS studies are a snapshot in time of costs versus revenues for each type of land use. They do not predict future costs or revenues or the impact of future growth. They do provide a baseline of current information to help local officials and citizens make informed land use and policy decisions.

METHODOLOGY
COCS studies involve five basic steps:

1. Define the scope of the project and identify land use categories to study (e.g., residential, commercial, industrial, farm and forest land).

2. Collect data on local revenues and expenditures.

3. Group revenues and allocate them to the land use categories identified in step 1.

4. Group expenditures and allocate them to the land use categories identified in step 1.

5. Analyze the data and calculate revenue-to-expenditure ratios for each land use category.

The process is straightforward, although ensuring reliable figures requires the assistance of local officials and service providers. The most complicated task is interpreting existing records to reflect COCS land use categories. Allocating revenues and expenses requires a significant amount of research, including extensive personal interviews.

HISTORY
Communities often evaluate the impact of growth on local budgets by conducting or commissioning fiscal impact analyses. Fiscal impact studies project public costs and revenues from different land development patterns. They generally show that residential development is a net fiscal loss for communities and recommend commercial and industrial development as a strategy to balance local budgets.

Rural towns and counties that are likely to benefit most from the information provided by fiscal impact analyses rarely have the expertise or resources to conduct a study, which tend to be expensive. Also, these studies rarely consider the fiscal contribution of farm, forest and recreational lands, which are very important to rural economies.

American Farmland Trust developed COCS studies in the mid-1980s to give communities a simple, inexpensive method of evaluating the contribution of farm, forest and ranch lands to the local tax base. COCS studies have been conducted in at least 58 communities in the United States.
FUNCTIONS & PURPOSES

Communities pay a high price for unplanned growth. Scattered development frequently causes traffic congestion, air and water pollution, loss of open space and increased demand for costly public services. This is why it is important for citizens and community leaders to understand the relationships between residential and commercial growth, land conservation and their municipality's bottom line.

COCS studies can help local officials and farmland protection advocates counter three claims that are commonly heard at local meetings in rural and suburban communities:

1. Residential development will lower property taxes by increasing the tax base;
2. Farmland gets an unfair tax break when it is assessed at its actual use for agriculture instead of its potential use for development;
3. Open lands, including productive farms and forests, are interim uses just waiting to be developed to their "highest and best use."

While it is true that an acre of land with a new house generates more total revenue than an acre of hay or corn, this tells us little about a community's fiscal stability. In areas where farming and forestry are major industries, it is especially important to consider the real property tax contribution of privately owned natural resource lands. Farms, forests and other open lands may generate less revenue than residential, commercial or industrial properties, but they require little public infrastructure and few services.

COCS studies conducted in more than 58 communities over the past decade show that owners of farm, forest and open lands pay more in local tax revenues than it costs local government to provide services to their properties. Residential land uses, in contrast, are a net drain on municipal coffers: It costs local governments more to provide services to homeowners than residential landowners pay in property taxes.

The findings of COCS studies are consistent with those of conventional fiscal impact analyses, which document the high cost of residential development and recommend commercial and industrial development to help balance local budgets. What is unique about COCS studies is that they show that agricultural land is similar to other commercial and industrial uses. In every community studied, farmland has generated a fiscal surplus to help offset the shortfall.
created by residential demand for public services. This is true even when the land is assessed at its current, agricultural use.

Communities need reliable information to help them see the full picture of their land uses. COCS studies are an inexpensive way to evaluate the net contribution of farm and open lands. They can help local leaders discard the notion that natural resources must be converted to other uses to ensure fiscal stability. They also dispel the myths that residential development leads to lower taxes, that differential assessment programs give landowners an unfair tax break and that farmland is just waiting around for development.

One type of land use is not intrinsically better than another, and COCS studies do not judge the overall public good or long-term merits of any land use or taxing structure. Communities must balance goals such as maintaining affordable housing, creating jobs and conserving land and resources. With good planning, these goals can complement rather than compete with each other. COCS studies give communities another tool to make decisions about their futures.

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**SUMMARY OF COSTS OF COMMUNITY SERVICES STUDIES, REVENUE-TO-EXPENDITURE RATIOS IN DOLLARS**

<table>
<thead>
<tr>
<th>State/Town</th>
<th>Residential including farm house</th>
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The Farmland Information Center is a public/private partnership between American Farmland Trust and the USDA Natural Resources Conservation Service that provides technical information about farmland protection.

American Farmland Trust works to stop the loss of productive farmland and to promote farming practices that lead to a healthy environment.

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American Farmland Trust
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American Farmland Trust's Farmland Information Center acts as a clearinghouse for information about cost of community services studies. Inclusion in this table does not signify review or endorsement by American Farmland Trust.
JOINT SENATE COMMITTEE LISTENS TO REPORT ON COSTS OF SPRAWL

Yesterday (Feb 1) a joint meeting of the Senate Environment and Agriculture Budget Division, Governmental Operation Budget Division and Transportation Budget Division was held to hear initial results of a study funded by the Legislative Commission on Minnesota Resources and jointly conducted by Center for Energy and Environment, Minnesotans for an Energy Efficient Economy and 1000 Friends of Minnesota on the economic, environmental and social costs of sprawl. The study compares impacts of two scenarios for future development in the broad Twin Cities region, one with an average housing density of 1.8 units per acre (the average density of new construction in recent years) and the other with an average density of 5.0 units per acre. Among other findings, the study revealed an additional $3 billion in capital infrastructure costs in the low-density 'sprawling' scenario over the 20 year period of the study.
Population Statistics

**World**

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<td>Projected 2050</td>
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**Nebraska**

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Source: U.S. Census Bureau, www.census.gov
WHY ARE THERE SO MANY OF US?

Description and Diagnosis of a Planetary Ecopathological Process

by Warren M. Hern

Statement of the Problem

The most stunning feature of the human population in the twentieth century is its rapid, unstrained growth. Yet this phenomenon is not new. Several spurts in human population growth have occurred. One began with the end of the Paleolithic and the beginning of the agricultural revolution; another occurred at the beginning of the Industrial Revolution (Deevey, 1960; Hassan, 1981). As of 1990, more humans have been added to the total world population in the past forty years than in the previous three million years (Keyfitz, 1989). Between 7 and 8% of all human beings ever born are alive today (Weeks, 1989). Until recently, the rate of growth of the human population has been increasing, which means that it even exceeds exponential growth (Demeny, 1986; Bartlett, 1978). While the current rate of growth has slowed slightly, it remains exponential at approximately 1.7% per year with a population doubling time of about 40 years. There is wide disagreement about the prospects for future growth of the human population and whether, as well as under what circumstances and when, it will stop growing.

Accompanying this rapid population growth has been the increasing pace of human destruction of the global ecosystem. Small scale human assaults on the environment had little or no lasting impact during the early Pleistocene, although local and regional impacts began to be seen in the late Pleistocene and Neolithic (Martin, 1980; Angel, 1975; Darby, 1956). Beginning with the Industrial Age, large portions of previously intact ecosystems that had previously experienced little or no human perturbation have been destroyed. As the 20th century draws to a close, human activities are seriously and perhaps irreversibly disrupting features of the global ecosystem that are necessary to the preservation of human species and other life forms. Global atmospheric carbon dioxide levels, for example, have increased 25% during the last century (Mooney, 1988). Three of the warmest years in the past 100 years occurred in the 1980s (Schneider, 1989). Severe seasonal reductions in the ozone layers over Antarctica, and perhaps even the Arctic, are matters of great concern to atmospheric scientists (Graedel & Crutzen, 1989). Photochemical smog has become a permanent problem in most of the major cities of the world, and "megacities" are beginning to contain most of the earth's inhabitants (Dogon & Kasarda, 1988). Enormous areas of the world's rainforests are being burned each year, and these conflagrations result in layers of smoke haze that cover tens of thousands of square kilometers. Innumerable species have become extinct as the direct result of human activity, and the rate of extinctions is increasing (Zwolfer, 1967; Hoage, 1985; Wilson, 1988). Wilson (1990) estimates that, at the present rate of ecosystem destruction, as many as 25% of all living species will become extinct within the next fifty years. Today, one oil tanker captain can wipe out a whole ecosystem; incidents of this kind fill daily headlines. At the same time, there is growing consciousness of our global ecosystem and the need to preserve it (SCEP, 1970; Boulding, 1973; Ehrlich et al, 1977; Lovelock, 1979; Russell, 1983; Myers, 1984; Rambler et al, 1989; Sahtouris, 1989; Daly & Cobb, 1989).

The human population has often been compared to some kind of planetary disease (Gregg, 1955; Eisley, 1961; Russell, 1983; Odum, 1989). Geologist Peter Flawn, speaking to students at Northwestern University in 1970, said that the earth's crust has a skin disease, a case of microbes miteung its crust, and that sickness is man (Flawn, 1970). Diagrammatic views of human settlements do have a certain similarity to some kinds of pathological lesions, including various kinds of dermatitis. Flawn's and other observations stimulate a search for other pathologic models. Lewis Mumford's book, The City in History, is suffused with references to large cities as pathologic processes. Geddes (1915), included a scheme of cities that included "Pathopolis". Because spectacular growth and invastiveness are outstanding characteristics of the human population, the similarity of the human species to a cancerous process comes readily to mind, especially to a physician. A schematic view of the growth of London from 1800 to 1955 looks like nothing so much as an expanding, invasive, metastatic, malignant tumor (Johnson, 1972; Figure 1). A nearly identical pattern

...the human population has all four characteristics of a malignant process

An important learning objective is to prepare students to find information on land use issues both for use in the course and after the course is completed. Many books, journals, and organizations are listed in the reference handout (see week 1). The internet is also an excellent source of information. The students spend one hour of this class in the computer lab becoming familiar with some of the many web sites containing information on land use, and with sites that provide information of use to the project groups. The remaining class time is devoted to project group meetings.

Materials in this section:

Internet resources lab handout
Urbanization of Rural Landscapes
10 February 1999

Internet Resources Lab

The internet provides access to a wealth of information regarding farmland loss and preservation, land use, urban design, sustainability, planning, and other issues related to the urbanization of rural landscapes. The purpose of this exercise is to familiarize students with a few of the most important web sites. All students will take about 15 minutes to look at two sites of general interest. The remainder of the hour is spent conducting research in support of the student projects. The sites listed below for each project are good starting points, with lots of links to other sites.

General sites (all students)

(1) American Farmland Trust:  http://www.farmland.org

The premier website on this topic. While at this site, be sure to click on Farmland Information Library in the Farmland Protection Resources section of the table of contents.


Designed to familiarize you with several of the key issues associated with sprawl, and direct you to some of the wealth of information already available on the Web.

Ecological Footprint Analysis Group

http://www.greenchannel.com/slt/substant.htm#footprint
From the Sustainable London Trust: Reducing London’s Ecological Footprint

http://www.ecouncil.ac.cr/rio/focus/report/english/footprint/
Ecological Footprints of Nations

Sustainability Indicators Group

http://www.subjectmatters.com/indicators/HTMLSrc/Indicators.html
Hart Environmental Data Sustainability Indicators webpage

Comprehensive Planning Group

http://www.sustainable.org
Sustainable Communities Network: Linking citizens to resources and one another to create healthy, vital, sustainable communities.

http://www.greenchannel.com/slt/intro.htm#sust&cities
From the Sustainable London Trust: Creating a Sustainable London
Week 6

The main topic this week is legal aspects of land use and legal tools for farmland and open space preservation.

The class includes the showing of two videos. *Houses in the Field* (1995, 27 minutes) illustrates the conflict between agriculture and development in southeastern Minnesota including legal, social, and economic issues. It can be obtained from the Land Stewardship Project, 2200 4th St., White Bear Lake, MN 55110, (612) 653-0618. *Farmland Forever* (18 minutes) by American Farmland Trust, shows interviews with farmers on why they sold their development rights and what they gained by doing so. Available from AFT, http://www.farmland.org/.

A lecture by Dr. Joe Luther of the Community and Regional Planning Department describes the legal basis of city planning, zoning, and the Comprehensive Plan. Dr. Luther also oversees a decision case study exploring the diversity of views regarding development of a farm near the urban edge, and the possibilities for compromises among divergent stakeholders and interest groups. Students play the role of various interest groups after being provided with some background on the situation. Roles include the farm owner, developers, environmentalists, county planning commission, and neighboring land owners.

Materials describing the Provincial Agricultural Land Reserve of British Columbia, Canada illustrate a much different legal system with regard to private property rights and the authority of the state to regulate land use. These are provided to the students as an interesting contrast with U.S. attitudes.

Readings from *Under the Blade* include Chapter 3, *The Law of the Land*, a thorough overview of the genesis of current land use law and property rights, and of state and federal laws and regulations influencing land use. Three case studies help to understand the role of law in land use changes: Case Study 10 describes the successful legal defense of the DeKalb County, IL Comprehensive Plan. Case 12 describes the Land Stewardship Project, their efforts in achieving passage of Minnesota’s statewide Community-based Planning Act, and the Green Corridor Project. Case 15 describes the detrimental effects of development on the poultry industry in northwestern Arkansas, and some of the legal strategies for reducing conflicts between agriculture and development in this region.

Materials in this section:

Lecture outline: Comprehensive Planning and Zoning (Joe Luther)
Sample decision case study sheet: Developing the Picard Estate
The British Columbia Agricultural Land Reserve
Green Corridor Project fact sheets
COMPREHENSIVE PLANNING AND ZONING

- Luther
- 2.1: Enabling Legislation
- 2.2: Process of Comprehensive Planning

2.1: ENABLING LEGISLATION

- Enabling legislation as "rules of the game."
- Must have a copy, on your desk, of all applicable enabling legislation.
- A grant of power from the state government to the local government;
- "ENABLING" the local government to do planning and zoning.

CONCEPT OF POLICE POWER

- Within most state constitutions
- "Any county, city, town or township may make and enforce within its limits, all such local police, sanitary and other regulations as are not in conflict with general laws."

Washington State Constitution, Article XI, Section 11

STANDARD STATE ZONING ENABLING ACT

- U.S. Department of Commerce - 1926 (rev)
- A "model" for states to use in establishing their own enabling acts.
• Purposes of zoning are stated in the first 3 sections of the document. It became a "textbook" with extensive footnotes.

• Also defined the scope of zoning.

5 STANDARD STATE ZONING ENABLING ACT

• Section 1: Grant of Power. -- For the purpose of promoting the health, safety, morals, or the general welfare of the community, the legislative body of cities and incorporated villages is hereby empowered to regulate and restrict the height, number of stories, and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population, and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes.

6 STANDARD STATE ZONING ENABLING ACT

• Section 2 Districts -- For any or all of said purposes the local legislative body may divide the municipality into districts of such number, shape, and area as may deemed best suited to carry out the purposes of this act; and within such districts it may regulate and restrict the erection, construction, reconstruction, alteration, repair, or use of buildings, structures, or land. All such regulations shall be uniform for each class or kind of buildings throughout each district, but the regulations in one district may differ from those in other districts.

7 STANDARD STATE ZONING ENABLING ACT

• Section 3. Purposes in View -- Such regulation shall be made in accordance with a comprehensive plan and designed to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of
population; to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements. Such regulations shall be made with reasonable consideration among other things, to the character of the district and its peculiar suitability for particular uses and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipalities.

8 ▶ STANDARD STATE ZONING ENABLING ACT

- Subsequent sections of the Standard Act provide for a procedure for adopting the zoning ordinance and making amendments, including provisions for protest by neighbors.
- The Act calls for the establishment of a zoning commission, which may be a planning commission, which makes recommendations on zoning.

9 ▶ STANDARD STATE ZONING ENABLING ACT

- The Act also permits the establishment of a Board of Adjustment to hear appeals from enforcement of the ordinance, to hear and decide special exceptions (i.e., special permits) and to give variances.
- Finally, the Act contains provisions for enforcement of the regulations.

10 ▶ SO WHAT ???

- Substantive local zoning outside the scope of the enabling act can result in a holding of
invalidity by the courts.

- Zoning can also be held invalid if the procedures established by the enabling act are not followed.

11 □ DEFINITION OF PLANNING

- PLANNING IS:
  - Anticipating change
  - Dealing with change
  - Achieving desired change

12 □ TYPES OF PLANS

- COMPREHENSIVE PLANS
- GENERAL PLANS
- MASTER PLANS
- STRATEGIC PLANS
- TACTICAL PLANS

13 □ STANDARD CITY PLANNING

ENABLING ACT (1928)

- Title I: Municipal Planning and Planning Commissions
- Title II: Subdivision Control
- Title III: Buildings in Mapped Streets
- Title IV: Regional Planning and Planning Commissions
- Title V: Miscellaneous Provisions
STANDARD CITY PLANNING
ENABLING ACT

1.2. GRANT OF POWER TO A MUNICIPALITY. -- Any municipality is hereby authorized and empowered to make, adopt, amend, extend, add to, or carry out a municipal plan as provided in this act and create by ordinance a planning commission with the powers and duties herein set forth.

PURPOSES IN VIEW. -- In the preparation of such plan the commission shall make careful and comprehensive surveys and studies of present conditions and future growth of the municipality and with due regard to its relation to neighboring property.

The plan shall be made with the general purpose of guiding and accomplishing a coordinated, adjusted, and harmonious development of the municipality and its environs which will, in accordance with present and future needs, best promote health, safety, morals, order, convenience, prosperity, and general welfare, as well as efficiency and economy in the process of development; including among other things, adequate provision for traffic, the promotion of safety from fire and other dangers, adequate provision for light and air, the promotion of the healthful and convenient distribution of population, the promotion of good civic design and arrangement, wise and efficient expenditures of public funds, and the adequate provision of public utilities and other public requirements.

The plan is a declaration of policy and intention and generally has no regulatory
effect.
- As a result, it usually has no legal effect.
- Most zoning enabling acts require that zoning be “in accordance with a comprehensive plan.”

18 PLANNING ENABLING ACTS
- 2nd and 3rd CLASS CITIES
- COUNTIES
- CHARTER CITIES
- OTHERS

19 THE COMPREHENSIVE PLAN
- May consist of a map or maps;
- diagrams;
- charts;
- reports;
- and descriptive materials.

20 THE COMPREHENSIVE PLAN
- Enabling legislation generally requires:
  - A Land Use Plan;
  - A Transportation Plan (streets & arterials);
  - A Housing Plan.

21 THE COMPREHENSIVE PLAN
- Other Elements of the Comp. Plan:
  - Urban Design;
- Historical Preservation;
- Open Space and Recreation;
- Agricultural Lands;
- Capital Improvements.

22 IMPLEMENTATION
OF THE COMPREHENSIVE PLAN
- Official Map Ordinance
- Zoning Ordinance
- Subdivision and Platting Ordinance
- Capital Improvements Program
- Community Development Program

23 ANALYSIS FOR PLANNING
- WHAT WAS
- WHAT IS
- WHAT COULD BE
- WHAT SHOULD BE

24 THE PLAN DOCUMENT
- Letter of Transmittal
- Introduction: authority, purpose, & who;
- Summary: general land use map and text;
- Background-History: how it came to be;
- Elements: goals, objectives, details, maps;
- Technical appendix.

25 THE PLANNING PROCESS
- READ: Solnit text, pp. 1-8 and 38-57
- READ: Course Reader - “Introduction” to Lincoln’s Plan

26 THE PLANNING PROCESS
- SOLNIT’S 10 CRITERIA THAT A WORTHWHILE PLAN SHOULD MEET
- pp. 44-48

27 THE PLANNING PROCESS
handout
The Sustainable Community Planning Process

PROBLEM RECOGNITION
PRECONTRACT DISCUSSIONS
PROBLEM RECOGNITION

COMMUNITY ORGANIZING
CORE GROUP TRAINING
COMMUNITY ORGANIZING

SETTING GOALS
TOWN HALL MEETING
SETTING GOALS

CHECKING GOALS
TOWN HALL MEETING
CHECKING GOALS

ENVIRONMENTAL ASSESSMENT
AD-HOC WORK GROUPS
ENVIRONMENTAL ASSESSMENT

FORECASTS AND PROJECTIONS
ENVIRONMENTAL SCANNING
FORECASTS AND PROJECTIONS

COMMUNITY NEEDS AND OBJECTIVES
LAND USE TRANSPORTATION SERVICES
COMMUNITY NEEDS AND OBJECTIVES

ALTERNATIVES AND SKETCH PLANS
PARTICIPATORY DESIGN
ALTERNATIVES AND SKETCH PLANS

CHOOSING THE PREFERRED FUTURE
NEEDS CHECKLIST
CHOOSING THE PREFERRED FUTURE

CHECKLISTS FOR ECONOMIC SOCIO-CULTURAL ENVIRONMENTAL PHENOMENA AND PROCESS
CHECKLISTS FOR ECONOMIC SOCIO-CULTURAL ENVIRONMENTAL PHENOMENA AND PROCESS

WHAT WAS WHAT IS
WHAT WILL BE WHAT COULD BE
WHAT WAS WHAT IS

PROBABLY AND POSSIBLE FUTURES
PROBABLY AND POSSIBLE FUTURES

ARRAY ALTERNATIVE TARGETS
BENCHMARKS
ARRAY ALTERNATIVE TARGETS

IMPLEMENTING THE PLAN AND POLICIES
THE TACTICAL PLAN
IMPLEMENTING THE PLAN AND POLICIES

THE TACTICAL PLAN
DEVELOPING THE COMMUNITY'S PLAN
THE TACTICAL PLAN

INCENTIVES, REGULATION, ACQUISITION, DEVELOPMENT
CATEGORICAL GOALS OBJECTIVES PRINCIPLES POLICIES PLANS REGULATIONS CRITERIA
INCENTIVES, REGULATION, ACQUISITION, DEVELOPMENT
CATEGORICAL GOALS OBJECTIVES PRINCIPLES POLICIES PLANS REGULATIONS CRITERIA
WEEK 8

SUBDIVISION OF LAND

- Read: Solnit, pp. 125-146
- Read: Title 26 - Land Subdivision
- Read: “Design Standards for Subdivision Regulations”

SUBDIVISION

- The process of laying out a parcel of land into lots, blocks, streets and public areas.
- Purpose is to transform raw land into building sites.
- Most states define as “the division of a tract of land into five or more lots.”
- See Solnit, pp. 33

Lincoln Title 26.07.170

SUBDIVISION

- Subdivision shall mean the division of a lot, tract, or parcel of land into two or more lots, sites, or other divisions of land for the purpose, whether immediate or future, of ownership or building development, except that the division of land shall not be considered to be subdivision when the smallest parcel created is more than ten acres in area. See Solnit, pp. 127
LOT

- A portion of real property containing at least the area required, at the time it was created, by the zoning district in which it is or was located, abutting at least one public street or private roadway, or

- A parcel of real property with a separate and distinct number or other designation shown on a final plat approved by the city......

STATE LEGISLATION

- Nebraska Revised Statutes § 15-106 and § 15-901

- City of Lincoln requires conformance with this legislation - by reference in Title 26

NRS §15-106

- Additions

- How Platted

- Approval

- Process

NRS §15-901

- Real Estate

- Subdivisions

- Platting

- Standards

- Process
Subdivision shall mean the division of a lot, tract, or parcel of land into two or more lots, sites, or other divisions of land for the purpose, whether immediate or future, of ownership or building development, except that the division of land shall not be considered to be a subdivision when the smallest parcel created is more than 10 acres in area.

In many states, the division of land into four lots or less is known as a lot split. In many jurisdictions, this escapes the public improvement requirements of subdivision regulations. Often used as a legal loophole to sell lots without upfront-costs of improvements. See Solnit, pp. 128

Ensure that new developments pay for the costs they create.

Ensure the project does not disrupt existing services.

Ensure the project doesn't create health or safety hazards,
• Ensure the project provides for the future.

11 ☐ Administrative Subdivision

• Lincoln Title 26.11.015 (Reader pp. 252)
• Planning Director ... empowered to administratively approve subdivisions under the following conditions:
• No new street or private roadway is accepted or needed within the area of the new lots ....
• Only used to create a maximum of four lots ...
• Etc. etc.
• Like a lot split, but with conditions.

12 ☐ PRELIMINARY PLAT

• See Reader at pp. 143
• See Solnit, pp. 27
• The first formal submission by a subdivider is usually in the form of a map with accompanying documents providing the information about the proposed subdivision as required by the local subdivision ordinance.

13 ☐ PRELIMINARY PLAT LINCOLN

• See Title 26.11.020 - A plat shall be required for all subdivisions (except for administrative subdivisions)
• Staff Review
• Planning Commission Hearing
• Criteria: “... satisfy the requirements of this title ...”
FINAL PLAT LINCOLN

- See Reader at pp. 258 §26.11.039
- Requisites for Final Plat Approval
- Improvements have been installed and approved.
- Petitions for assessment districts ...
- Bonds, escrow or security agreements ...

DEVELOPMENT STANDARDS

- See Reader at pp. 261 Ch. 26.23
- General Requirements and Minimum Standards
- Conformity with Comprehensive Plan
- Relation to Adjacent Street System
- Street and Right of Way Requirements
- etc. etc.

DESIGN STANDARDS FOR SUBDIVISION REGULATIONS

- See Reader at pp. 265
- Minimum Improvements
- What about Optimum?

PLANNED UNIT DEVELOPMENTS
A self-contained development, often with a mixture of land uses and densities, in which the subdivision and zoning controls are applied to the project as a whole rather than to individual lots, as in most subdivisions.

LINCOLN
PLANNED UNIT DEVELOPMENTS

- Zoning Ordinance at §27.60
- Intended to permit private or public development or redevelopment of areas throughout the city which shall be substantially in accordance with the comprehensive plan of the City of Lincoln.

PLANNED UNIT DEVELOPMENTS

- The proposed development shall provide a desirable environment and shall be harmonious with the general and surrounding uses while permitting flexibility in overall development.
DEVELOPMENTS

• GENERAL PURPOSES
  • Permit flexibility in the regulation of land development;
  • Encourage innovation in land use and variety in design, layout, and type of structures constructed;
  • Achieve economy and efficiency in the use of land, natural resources, energy, and the provision of useful open space;
  • Provide improved housing, employment, or shopping opportunities particularly suited to the needs of an area.

LINCOLN PLANNED UNIT DEVELOPMENTS

• PROCEDURAL REQUIREMENTS
  • Zoning Ordinance at §27.60.030
  • Preapplication
  • Sketch Plans
  • Preliminary Plan - Form

PLANNED UNIT DEVELOPMENT

• Mixed Uses
• Gross Density
• Net Density
• Cluster Development
• Affect on Environment & Client & Residents
• Enhancing the Human Experience
Example decision case role

(Joe Luther)

PICARD'S ROLE

SITUATION (FACT PATTERN):

The Picard's estate, some 1,000 acres, has been in their family's ownership since 1790. Their ancestors are buried on this land. The old family home dates to 1795 and once hosted Meriwether Lewis, as well as other noted historical figures: it is on the National Register of Historic Places. Mr. Picard, a retired ship's captain, has had wine grape stems imported from Burgundy at a significant cost. They have just planted some 500 acres of their land in grapes and have had an architect draw plans for a winery on this site. This winery will include a sales area, a gift shop, a tasting room, tours of the facility, and a restaurant beside a small scenic stream and waterfall (apparently in the flood plain). His wife, Beverly, a retired physician, has developed extensive plans for these facilities. They have applied for several development loans from various Federal agencies.

Their land and house are located in the county on the south side of the urbanizing area. The Picard's land is currently zoned Agricultural with a permitted density of 1 dwelling unit per 10 acres.

The city and county have just updated (1996) their respective Comprehensive Plans that show the Picard's land as part of the city's future urban development with a future density of 3 dwelling units per acre. In anticipation of future urban development in this area, the city's Capital Improvements Program indicates that a major water main and wastewater system line will be extended along the length of the Picard's' road frontage... some 2 miles. The road fronting their property is being improved to four lanes of pavement. The Picards must pay their fair share of the assessment for these improvements.

The Picards realize they might subdivide and develop some of their acreage in order to pay for these changes, as well as increased taxes. Captain and Dr. Picard have come to the planning department, with their attorney, seeking help and advice. Their previous encounters with local government have been distasteful - the politicians and staff have been both bumptious and Erinaceous in affect. Frantic to save their dreams, they have reluctantly come to ask the following questions of the planning department:

How can we BEST develop our property so that we can continue with our farming and wine industry, but still make enough money to justify the tax and utilities assessments? In other words, how can we combine farming, a vineyard, a winery, retail and wholesale operations, and maybe some limited housing development? We are interested in creating a housing project with a small French village motif.
The use of land and the allocation of natural resources will continue to be important concerns of the people of British Columbia. Rapid population growth in urban regions, the search for sustainable employment opportunities, the desire to protect our natural environment, and the need to resolve negotiations with First Nations, all present challenges that must be addressed.

Highlights

The Provincial Agricultural Land Commission (ALC) is an independent Provincial agency dedicated to protecting the scarce supply of agricultural land that is important to the current and future needs of British Columbia. The ALC encourages the establishment and maintenance of farms, to provide a basis for sustainable economy and a secure source of food. The ALC, in partnership with local governments, established the Agricultural Land Reserve or ALR, a Provincial land use zone that protects scarce soil resources and provides agriculture a place to do business.

The Forest Land Commission (FLC) is an independent Provincial agency dedicated to preserving the integrity of a Provincial commercial forest land base to provide economic, environmental and social benefits to all communities in British Columbia. The FLC is responsible for the Forest Land Reserve, which is an essential part of a Provincial land base strategy to create a sustainable future for British Columbia.
My property is in the ALR. What does this mean?

If your property is in the ALR, it means that it is subject to the *Agricultural Land Commission Act* which was established to preserve agricultural land for present and future generations and to encourage the establishment and maintenance of farms as a secure source of food.

The ALR can be thought of as a provincial land use zone in which agriculture is recognized as the priority use. Farming is encouraged and non-agricultural uses are regulated. If you wish to subdivide or use your land for non-farm purposes or exclude your land from the ALR, you must submit an application to the Commission and obtain its approval.

Should you wish to make an application, contact your local government office (i.e. the municipality, regional district or Islands Trust office in which your property is located). Information may also be obtained from the Agricultural Land Commission office.

How do I make an application?

Contact your local government office and ask for the Applicant's Information Package. Follow the steps outlined. You may also contact the Agricultural Land Commission office for information.

Where do I get an application form?

Application forms are available from your local government office or the Agricultural Land Commission office. Also ask for the Applicant's Information Package which contains useful information for preparing your application.

How much does an application cost? Will I get a refund if my application is refused?

Application fees vary depending on the type of application you are making. Ask your local government office for a copy of the Applicant's Information Package which contains information on fees and types of applications.

The fees represent a portion of the costs involved in processing your application. A portion of the application fee is retained by the local government and the balance of the fee is submitted to the Agricultural Land Commission office.

Will I get a refund if my application is refused?

Application fees are non refundable. However, in instances where the local government does not authorize your application to proceed to the Commission, the portion of the fee normally submitted to the Commission is returned to you. In cases of hardship, there are provisions to waive the application fees. Ask for information on the Commission's policy on Waiving of Fees to determine if you qualify.
How long does an application take?

The Commission strives to process your application within 90 days of receipt. However, the length of time to process your application depends on the type of application and its complexity. Delays can occur if your application is incomplete or does not have the necessary documents or fee enclosed. Delays can also occur if the Commission feels it requires additional information such as an on-site inspection of your property by its farm advisors, staff agronomist, or members of the Commission.

Additional information may also be required from the local government or other government agencies.

Most types of applications are submitted directly to the local government office, which, in turn, forwards your application to the Commission.

How will I find out the Commission's decision? Can you tell me the decision over the phone?

You will be notified of the Commission's decision on your application by letter. The Commission has a policy of not relaying its decisions over the phone in order to avoid any misinterpretation or misunderstanding as in many instances, decisions are complex and contain extensive rationale and stipulations.

Telephone calls to staff asking for this information only adds to delays as the time spent advising you that the information cannot be given over the phone and the reasons for this take away from the time staff can spend on processing your application.

What information does the Commission consider? What are my chances for success?

The information the Commission considers is noted in the Applicant's Information Package which can be obtained from your local government office. The chances of success of your application depend entirely on the specific circumstances involved. The more information you supply, the better the Commission can understand your request. How does your proposal benefit agriculture? Does your proposal impact negatively on the potential for farming in your area? How does your proposal relate to the responsibility of the Commission to preserve agricultural lands? These issues are paramount to the Commission's decision.

If my application is refused, can the decision be appealed or reconsidered?

If your application is refused, it will not be reconsidered by the Commission unless there is new evidence that was not available at the time of its original decision, or if the decision was based on evidence that was in error or false.

There is no avenue for appeal except on a question of law or excess of jurisdiction by way of stated case to the Supreme Court. The remedies of the Judicial Review Procedures Act also apply.

What is the Commission? Who are the Commissioners? Where are they from? Do they work full-time? How often does the Commission meet?
The Commission consists of five or more members appointed by the Lieutenant Governor in Council upon the recommendation of the Minister of Agriculture & Food. The Commission has the responsibility for administering the *Agricultural Land Commission Act*. The Commissioners reflect a wide range of agricultural and land use experience and come from a variety of regions within the province. The Commissioners do not work full time for the Agricultural Land Commission. They meet approximately five days every month during which time they decide on applications amongst many other duties. Meetings take place at the Commission office in Burnaby as well as in local government offices throughout the province.

Can I develop my property as allowed by local zoning?

Not unless the proposed use or subdivision is one that is allowed by the *Agricultural Land Commission Act* or Regulations or has been specifically approved by the Commission by way of an application.

Does the Commission's decision overrule local government?

Local government bylaws and the *Agricultural Land Commission Act* regulate the use of ALR lands. If an approval is granted by the Commission, you must still comply with the local government regulations as well as any other legislation that may apply to your proposal.

Will the Commission allow my proposal if local government supports my proposal?

Not necessarily. The Commission values the opinion of local governments but it may disagree.

What is the minimum lot size allowed in the ALR?

There is no minimum parcel size established by the Commission for lands within the ALR. While local government subdivision and zoning bylaws may establish minimum parcel sizes, this does not necessarily mean that the Commission will approve an application to subdivide to the parcel size permitted by local zoning.

How many dwellings are permitted per parcel?

One single family dwelling per land registry parcel is permitted within the ALR. Additional permanent dwellings may be permitted if they are required for full time, legitimate, bone fide farm operations.

A single-wide mobile home may also be permitted on a temporary basis for a relative or farm help subject to certain conditions. Ask for information on the Commission's General Order on Temporary Mobile Homes.

Any other dwellings must be approved by the Commission based on an application.

Is there a time limit on an approval? Can the approval be transferred to a
subsequent property owner?

There is no time limit on an approval of the Commission unless specifically noted as a condition of approval. The approval runs with the land and therefore is transferable to subsequent owners of the land unless stipulated otherwise as a condition of the approval.

What is the soil classification or agriculture capability rating of my property?

The Commission uses the Land Capability Classification System for Agriculture in British Columbia and where this mapping is not available, the Canada Land Inventory mapping, to determine the agricultural capability of land. Both systems identify land according to its potential and limitations for agriculture using a rating system of Class 1 to 7. Information on the agriculture capability classification of your property can be obtained from the Geographic Information Department of the Commission. Staff will need to know the legal description of your property in order to provide this information.

Your local government office may also have this information.

For further information on the agriculture capability rating system, ask for a copy of the Commission's pamphlet "What is Agricultural Land?" or see the online version.
GREEN CORRIDOR PROJECT

Proposed Green Corridor Opportunity Areas

What is the purpose of the Green Corridor Project?
The Green Corridor Project is dedicated to helping Chisago and Washington counties' residents keep the beautiful countryside, farmland and special natural areas that make them great places to live.

What is a ‘green corridor’?
Green corridors are farmland, natural areas, environmentally sensitive lands, and scenic areas that are linked together throughout the community. The Green Corridor will link these lands with already protected public and private lands in Chisago and Washington counties.

What will happen in the Green Corridor?
It is proposed that owners of lands in the Green Corridor would be eligible for incentive-based land conservation tools that they can use in considering the future of their property. The Green Corridor Project will work closely with local government and land owners to selectively apply the following four land protection tools to lands located in the designated green corridor: donated conservation easements, purchased development rights (PDR), transferred development rights (TDR), and land acquisition. Lands to be protected must meet the criteria for each tool and must be owned by landowners interested in participating in the programs.

How were the Green Corridor Opportunity Areas determined?
The Green Corridor Project determined the criteria of lands that would meet each of the main four program objectives: protect agricultural land, preserve natural habitat diversity, protect environmentally sensitive areas, and preserve scenic areas. Data were mapped for each of the criteria to guide the mapping work. At public forums in the fall of 1997, more than 250 citizens provided information on their conservation priorities and lands that they would like to see protected. A Green Corridor Advisory Team, of more than a dozen people with specialized technical expertise, used all of this information to map three corridor options of lands that best met all of the program objectives.

During the fall of 1998, more than 260 citizens attended 6 public forums and another 60 local government officials and staff attended special local government meetings to review the three options. Input from these meetings and selected community plans were reviewed by the Green Corridor Advisory Team to help create the Proposed Green Corridor Opportunity Areas.

What will happen next?
The Green Corridor Project will be scheduling meetings with townships and cities in the Proposed Corridors early in 1999 to review the proposed corridors. The collaborative team is providing technical and limited financial assistance to communities and watershed districts interested in implementing conservation programs. A roundtable of community officials and staff, land owners, real estate interests, conservationists, and others is exploring development of proposals for implementing Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR) programs. The Minnesota Land Trust is working with landowners interested in donated conservation easements.

If you or your community is interested in helping to implement the Green Corridor, please contact 1000 Friends of Minnesota or any of the project collaborators.

Funding for this project approved by the Minnesota Legislature: ML1997, Chapter 216, Section 15, subdivision 9(d) as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund.
The Green Corridor Project...
Keeping Open Spaces for Tomorrow

The Green Corridor Project is dedicated to helping the residents of Washington and Chisago Counties keep the beautiful countryside, farmland, and special natural areas that make this a great place to live.

Green corridors are areas of farmland, natural areas, scenic areas and other open spaces that are linked together throughout the community. Green Corridors help communities keep the landscape they love while accommodating growth. This is achieved through incentive-based programs that provide interested landowners with new options.

Open Space: Save It or Say Goodbye

Our communities are growing very fast. We can continue to grow and thrive, but we need to plan proactively for where we want growth to go. If we don’t, we can say goodbye to the landscape we love.

- Every day in Minnesota, an area the size of the Mall of America is paved over.
- Minnesota is the fastest growing state in the upper Midwest.
- The 13-county Twin Cities area is the fastest growing metropolitan region from the northern plains to the eastern seaboard.
- This metropolitan area also is one of the most sprawling (land and resource consuming) of the top 25 metro regions in the country.
- Washington County is one of the fastest growing counties in the state and the country.
- By June 1994, Chisago County had already passed its projected population growth for the year 2000 by 41 percent.

Sprawl Costs Us All

Property taxes continue to increase in Minnesota, and more and more communities are finding that explosive, sprawling growth is part of the problem.

Growth can expand a community’s tax base, but it also increases demand for costly roads, schools, police, fire, sewer and water lines and other services for which the community must pay. There is mounting evidence that inefficient, sprawling growth is actually a net drain on community tax coffers.

- Houses Cost More than Farms: A 1994 analysis of three Minnesota cities shows that residential development costs more tax dollars than it contributes in tax revenues. For every $1 paid in taxes, farmland demands $.47 in services, while residential development demands $1.04 in services.

<table>
<thead>
<tr>
<th></th>
<th>Tax revenues</th>
<th>Cost of services demanded</th>
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<tbody>
<tr>
<td>Farmland</td>
<td>$1.00</td>
<td>$.47</td>
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<tr>
<td>Residential development</td>
<td>$1.00</td>
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• Sprawl Costs Taxpayers More: Economic research done in Minnesota shows that compact developments save taxpayer dollars because services can be provided more efficiently. In Wright County, when service costs of residential development were compared with the revenue they generated, low density residential development had a net deficit which was more than four times that of high density residential development.

Green Corridors Protect More than Open Space

Around the Midwest and throughout the country, green corridors have worked to help communities accommodate fast growth and still keep the landscapes they love. Green corridors provide connections between communities, between already protected lands, and between people and the land. Green corridors protect our green infrastructure, providing a legacy for future generations.

Communities in places from Massachusetts and Michigan to Colorado and Oregon have used green corridors to improve the appeal of neighborhoods and support their long-term tax base. Economic studies around the country have demonstrated proximity to open spaces, agricultural land, and parks boosts property values and enhances the appeal of neighborhoods.

- A study in Boulder, Colorado found that properties immediately next to green corridors had market values 32 percent more on average than similar properties without green corridors nearby.
- In Minnesota, 61 percent of property owners living next to the Luce Line Trail noted an increase in their property values. Realtors confirm that proximity to the trail enhances the appeal and selling value of property.
- An Oregon study found that urban land next to agricultural land was worth $1,200 more per acre that similar land 1,000 feet away.

Tools to Keep Open Spaces

The Green Corridor Project will help people keep the landscape we love using four incentive-based tools.

- Donated Conservation Easements
- Purchased Development Rights (PDR)
- Transferred Development Rights (TDR)
- Land Acquisition

For more information on these tools, refer to the other fact sheets in this series.
The Land Protection Toolbox

Communities that are concerned about the long-term impacts of development pressures on their farmland and natural areas can look at a number of options. While each of these tools can play a valuable role in maintaining a critical mass of open space and agriculture, no silver bullets can meet all of a community's needs. The most effective strategy is to use the combination of tools that make the most sense for your own city, county, or township.

The Green Corridor Collaborative can help individual communities in Chisago and Washington counties as they examine the toolbox. We can provide technical assistance and references to other communities who have successfully applied these tools.

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**Donated Conservation Easements** are voluntary legal agreements between a landowner and a land trust or local government agency that allow landowners to permanently limit or prohibit development on their property. Conservation easements run with the title so that all future owners of the land are bound by the original agreement.

**Purchased Development Rights (PDR)** are voluntary legal agreements that allow owners of land meeting certain criteria to sell the right to develop their property to local government agencies, state government, or to a nonprofit organization. A conservation easement is then placed on the land. This agreement is recorded on the title to permanently limit the future use of the land to agriculture, forestry, or other open space uses.

**Transferred Development Rights (TDR)** are enabled by local ordinances that create *sending areas*, or preservation areas, and *receiving areas* where communities encourage additional growth and development. Landowners in the *sending area* receive *development right credits* which they can sell in exchange for not developing their land. Real estate developers, speculators, or the local unit of government can then purchase the *development right credits* and use them to increase existing or planned densities in *receiving areas*. **Land Acquisition** – is used in select cases when willing landowners want to conserve their land by selling or donating it outright to a public agency or land conservation organization. This mechanism allows the public agency to have full control over a property's future.
<table>
<thead>
<tr>
<th>Land Protection Tool</th>
<th>Pro</th>
<th>Con</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donated Conservation Easements</td>
<td>• Permanently protects land from development pressures.</td>
<td>• Tax incentives may not provide enough compensation for many landowners.</td>
</tr>
<tr>
<td></td>
<td>• Landowners may receive income, estate, and property tax benefits.</td>
<td>• Little local government control over which areas are protected.</td>
</tr>
<tr>
<td></td>
<td>• No or low cost to local government.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Land remains in private ownership and on the tax rolls.</td>
<td></td>
</tr>
<tr>
<td>Purchase of Development Rights</td>
<td>• Permanently protects land from development pressures.</td>
<td>• Can be costly for local unit of government.</td>
</tr>
<tr>
<td></td>
<td>• Landowner is paid to protect their land.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Landowners may receive estate and property tax benefits.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Local government can target locations effectively.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Low cost to local unit of government.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Utilizes free market mechanisms.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Land remains in private ownership and on the tax rolls.</td>
<td></td>
</tr>
<tr>
<td>Transfer of Development Rights</td>
<td>• Permanently protects land from development pressures.</td>
<td>• Can be complex to manage.</td>
</tr>
<tr>
<td></td>
<td>• Landowner is paid to protect their land.</td>
<td>• Receiving area must be willing to accept higher densities.</td>
</tr>
<tr>
<td></td>
<td>• Landowners may receive estate and property tax benefits.</td>
<td>• Most successful programs typically require a strong real estate market.</td>
</tr>
<tr>
<td></td>
<td>• Local government can target locations effectively.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Low cost to local unit of government.</td>
<td></td>
</tr>
<tr>
<td>Land Acquisition</td>
<td>• Provides maximum flexibility for local unit of government to determine future use of land.</td>
<td>• Can be costly for local unit of government.</td>
</tr>
<tr>
<td></td>
<td>• Financial incentive for landowner.</td>
<td>• Government takes on the costs and liability of land management.</td>
</tr>
<tr>
<td></td>
<td>• Local government can target locations effectively.</td>
<td></td>
</tr>
</tbody>
</table>

**Comprehensive Land Use Planning** – Each of these land protection tools has pros and cons which must be weighed by the local unit of government. To most effectively utilize a combination of these tools, the local unit of government should develop a new comprehensive land use plan, or amend an existing plan, to ascertain its unique needs and apply the most appropriate tools for the situation. Comprehensive plan changes should always be undertaken with a maximum level of citizen participation from throughout the community. Land protection tools can complement effective zoning to carry out the goals of the comprehensive plan.

Funding for this project approved by the Minnesota Legislature: ML1997, Chapter 216, Section 15, subdivision 9(d) as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund.
Conservation Easements
and Tax Benefits for Landowners

What Is a Conservation Easement?

A conservation easement is a legally recorded agreement by which landowners may voluntarily restrict the use of their land. A conservation easement protects important land resources and can be held by a qualified conservation organization (such as the Minnesota Land Trust) or local unit of government. Provided that certain conditions are met, donors of easements may be eligible for income, estate and/or property tax benefits. One condition is that there must be an established, recognizable public benefit, such as protecting rare species, public water supplies, or scenic vistas visible from roads. Public access is not a requirement.

Although the duration of a conservation easement can vary depending on the desires of the landowner, tax benefits are available only for perpetual easements. Many land trusts will only accept perpetual easements, since they provide permanent protection by subjecting all future landowners to the same restrictions. Conservation easements are also the principal legal mechanism used to protect land in a Purchase of Development Rights (PDR) or Transfer of Development Rights (TDR) program (see other fact sheets in this series).

What Types of Land Can Be Protected through Conservation Easements?

Any type of undeveloped or sparsely developed property can be protected with a conservation easement. Conservation easements can be used to protect agricultural land, forested land, wildlife areas, wetlands and other scenic or natural lands.

What Effect Does This Agreement Have on My Property Rights?

A landowner who conveys a conservation easement retains all rights to use the land for any purposes that do not interfere with the conservation of the property as stated in the terms of the easement. The landowner retains the title to the property, the right to sell it, the right to restrict public access, and the right to give it to whomever he or she chooses. However, most or all of the rights to develop are restricted or eliminated. The terms of a conservation easement are individually tailored to reflect each landowner’s particular needs, situation and property. For example, one landowner may want to prevent any future development. Another may want to retain the right to construct an additional barn or shed. A third landowner may want to reduce, beyond what is allowed by current zoning, the number of homes that may be built on a certain parcel. The easement can be written to apply to the entire property or to only a portion of it.

How Is the Easement Value Determined?

Land ownership can be viewed as owning a variety of separate rights on the property. These rights include, but are not limited to, the right to farm the land, the right to build on the land, and the right to exclude the public. When a conservation easement limits any of these rights, the value of the land is affected. The value is determined by having a ‘before’ and ‘after’ appraisal completed by a qualified appraiser who meets IRS requirements. First, the land is appraised in light of its full development potential. Then the land is appraised again, taking into account the easement restrictions which limit some or all of the property’s development rights. The difference between these two figures is the value of the easement.
In instances where the easement is donated and qualifies under IRS regulations, this amount also is the value of a charitable contribution which can be taken as an income tax deduction. Appraisal costs are the responsibility of the landowner considering donating a conservation easement.

What are the Tax Benefits of a Donated Conservation Easement?

**Federal Income Tax Benefits**—Under the IRS code, the donation of a qualified conservation easement may be treated as a charitable contribution. The value of the contribution can be deducted at an amount up to 30 percent of the donor’s adjusted gross income in the year of the gift. If the easement’s value exceeds 30 percent of the donor’s income, the excess can be carried forward and deducted (again, subjected to the 30 percent limit) over the next five years, if needed.

**Estate Tax Benefits**—Donation of easements, whether during the landowner’s life or by bequest, can reduce the value of the land upon which estate taxes are calculated. This can greatly benefit the landowner wishing to transfer land to relatives. The estate tax benefits of a conservation easement can often mean the difference between heirs having to sell property to pay estate taxes or being able to keep the property in the family.

**Property Tax Benefits**—The conveyance of a conservation easement may reduce a landowner’s property taxes. This depends on current zoning and land use, current assessed value, and whether the owner participates in a current-use assessment program like Green Acres or Metropolitan Agricultural Preserves Program. Under Minnesota law, county assessors must take a conservation easement into consideration in establishing the market value of the land subject to the easement. However, existing tax basis, assessed value, and current zoning of each piece of property are important factors in determining the potential benefits of any easement. The exact terms of each individual easement also have a bearing on its effect on property taxes.

What Criteria Must Be Satisfied?

To be eligible for most of the above tax benefits, the agreement must be entered into with a qualified conservation organization, such as the Minnesota Land Trust, or a local unit of government. In addition, the terms of the easement must be perpetual and they must meet other IRS requirements. The criteria that must be satisfied for the Minnesota Land Trust to accept such a donation are available upon request.

What Rights Does the Easement Holder Have to My Land?

If the Minnesota Land Trust or another qualified organization accepts an easement on your land, it is obligated to oversee and enforce the easement’s terms and conditions. For example, an organization has the right to enter and inspect the property (usually once a year) to ensure that the terms of the agreement are being upheld. Except in unusual circumstances, these visits are scheduled with the landowner. The organization does not have the right to use your property, nor does the easement allow public access to the property since it remains privately owned.

To learn more about donated conservation easements, contact the Minnesota Land Trust.

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**Funding for this project approved by the Minnesota Legislature:** ML1997, Chapter 216, Section 15, subdivision 9(d) as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund
Purchase of Development Rights

Purchase of Development Rights (PDR) programs have been used successfully in many areas around the nation. They were pioneered in Suffolk County, New York in 1974 and have since been used across the nation to preserve an estimated 400,000 acres of farmland alone. Programs focused on natural areas and other open spaces have protected additional acreage.

Description

Under a PDR program, a landowner voluntarily sells his or her rights to develop a parcel of land to a public agency or a charitable organization interested in natural resource conservation. The landowner retains all other ownership rights attached to the land, and a conservation easement is placed on the land and recorded on the title. The buyer (often a local unit of government) essentially purchases the right to develop the land and retires that right permanently, thereby assuring that development will not occur on that particular property. The landowner is generally compensated for the value of the right to develop the land through the following formula:

General Approach – Appraisal Method

| Appraised Value for Development | Appraised Value for Agriculture/Conservation | = | Appraised Value of Development Rights |

Considerations

When considering where PDR fits into a community’s land conservation plan, one should consider the cost involved in purchasing development rights on a significant amount of land. In areas with high growth pressure, the cost of a PDR program can be high as the difference between development value and conservation value increases. Used strategically, however, a PDR program can be an effective tool to help maximize a community’s conservation efforts. Money for PDR programs can be raised through a variety of means, including bonding initiatives, private grants, and various taxation options. Many communities have found matching dollars from state and federal sources. Additional considerations are noted on the back side of this fact sheet.

Where It Is Working

One of the most successful PDR programs in the country is run by the Agriculture Preserve Board of Lancaster County, Pennsylvania. It has preserved over 23,500 acres of farmland since 1981.

Closer to home, Dunn Township, Wisconsin, located near Madison, initiated a PDR program in 1996. In 1997, the Minnesota legislature passed enabling legislation to explicitly allow local units of government to develop and utilize PDR programs.

The Green Corridor Project is working to develop one of Minnesota’s first Purchase of Development Rights program.
<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Year of Inception</th>
<th>Acres Protected</th>
<th>Farms Protected</th>
<th>Funds Spent to Date</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selected State PDR Programs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colorado</td>
<td>1994</td>
<td>1,878</td>
<td>3</td>
<td>$610,000</td>
<td>A portion of lottery proceeds, FFP</td>
</tr>
<tr>
<td>Delaware</td>
<td>1991</td>
<td>15,961</td>
<td>65</td>
<td>$18,950,000</td>
<td>Appropriations from special capital fund, FPP</td>
</tr>
<tr>
<td>Maryland</td>
<td>1977</td>
<td>128,031</td>
<td>884</td>
<td>$140,637,690 (not including admin costs)</td>
<td>Agricultural transfer tax, portion of real estate transfer tax, FPP</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>1977</td>
<td>39,334</td>
<td>430</td>
<td>$95,000,000</td>
<td>State bonds, FPP</td>
</tr>
<tr>
<td>Michigan</td>
<td>1994</td>
<td>79</td>
<td>2</td>
<td>$709,600</td>
<td>Withdrawal penalties from state circuit breaker program, FPP</td>
</tr>
<tr>
<td>New Jersey</td>
<td>1983</td>
<td>34,972</td>
<td>234</td>
<td>$167,826,221</td>
<td>State bonds, FPP</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1988</td>
<td>91,813</td>
<td>730</td>
<td>$186,000,000</td>
<td>Cigarette tax, state bonds, county allocations, FPP</td>
</tr>
<tr>
<td><strong>Selected Local PDR Programs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marin Co., CA</td>
<td>1980</td>
<td>25,504</td>
<td>38</td>
<td>$17,000,000</td>
<td>State bonds, 10% of unallocated county funds</td>
</tr>
<tr>
<td>Sonoma Co., CA</td>
<td>1990</td>
<td>22,850</td>
<td>60</td>
<td>$34,000,000</td>
<td>.25% sales tax, state bonds</td>
</tr>
<tr>
<td>Peninsula Twp., MI</td>
<td>1994</td>
<td>724</td>
<td>10</td>
<td>$1,253,000</td>
<td>Property tax increase, state grants, FPP</td>
</tr>
<tr>
<td>Suffolk Co., NY</td>
<td>1974</td>
<td>5,568</td>
<td>139</td>
<td>$26,000,000</td>
<td>Municipal bonds, FPP</td>
</tr>
<tr>
<td>Forsyth Co., NC</td>
<td>1986</td>
<td>1,236</td>
<td>20</td>
<td>$1,869,965</td>
<td>County budget reserve, FPP</td>
</tr>
<tr>
<td>Virginia Beach, VA</td>
<td>1995</td>
<td>48</td>
<td>1</td>
<td>$267,016</td>
<td>Property tax increase, cellular phone tax</td>
</tr>
<tr>
<td>King Co., WA</td>
<td>1979</td>
<td>12,691</td>
<td>209</td>
<td>$54,113,724</td>
<td>Municipal bonds, FPP</td>
</tr>
<tr>
<td>San Juan Co., WA</td>
<td>1990</td>
<td>670</td>
<td>5</td>
<td>$1,419,401</td>
<td>Real estate transfer tax</td>
</tr>
<tr>
<td>Dunn, WI</td>
<td>1996</td>
<td>174</td>
<td>1</td>
<td>$260,000</td>
<td>Property tax increase</td>
</tr>
</tbody>
</table>

Source - Tables 3.1 and 3.2 in “Saving America’s Farmland: What Works”, American Farmland Trust (1997) pages 86-87
FPP: Federal Farmland Protection Program.
Program in Colorado is a multi-purpose program; the figures in the table represent easement acquisitions on farmland.

**Detailed information** on setting up a PDR program is available in the Green Corridor Project’s publication: “Protecting Your Communities Natural Resources: A Land Protection Toolbox of Local Government”
Transfer of Development Rights

Transfer of Development Rights (TDR) programs use market forces to simultaneously promote conservation in high value natural, agricultural, and open space areas while encouraging smart growth in developed and developing sections of a community. Successful TDR programs have been in place since 1980, and have protected tens of thousands of acres of farmland and open space throughout the country.

Description

In a TDR program, a community identifies an area within its boundaries which it would like to see protected from development (the sending zone) and another area where the community desires more urban style development (the receiving zone). Landowners in the sending zone are allocated a number of development credits which can be sold to developers, speculators, or the community itself. In return for selling their development credits, the landowner in the sending zone agrees to place a permanent conservation easement on his or her land. Meanwhile, the purchaser of the development credits can apply them to develop at a higher density than otherwise allowed on property within the receiving zone.

The attached sheet provides a visual example of how TDR can work in a community.

Considerations

TDR programs have the advantage of using free market mechanisms to create the funding needed to protect valuable farmland, natural areas, and other open space. However, many people find TDR programs complex and administratively challenging, requiring the local unit of government to make a strong commitment to administering a potentially complicated program and educating its citizens and potential developers. TDR programs must be combined with strong comprehensive planning and local controls in order to be successful.

Where It Is Working

Montgomery County, Maryland, near fast growing Washington, D.C., established its TDR program in 1980. By the end of fiscal year 1997, the TDR program had protected 39,180 acres (out of a total sending area of 89,000 acres) under protective easement. Prior to 1980, the county lost an average of 3,500 acres of farmland per year to development. In the first decade following the establishment of the TDR program, the county lost a total of 3,000 acres to development, a drop of approximately 92 percent.

The New Jersey Pinelands, an environmentally unique and sensitive area of about one million acres, was targeted for protection through The New Jersey Pinelands Protection Act of 1979. The Pinelands Commission, the regional land use authority, established a TDR program in 1980 which had protected 5,300 acres by 1991.

In 1997, the Minnesota legislature passed enabling legislation to explicitly allow local units of government to develop and utilize TDR programs. The Green Corridor Project is working to develop Minnesota’s first formal Transfer of Development Rights program.
Transfer Of Development Rights
Hypothetical Example

Existing Conditions

Conventional Development

TDR Concept

TDR Implementation

*Note – the actual density bonus is set by local ordinance and need not be this high.

Detailed information on setting up a TDR program is available in the Green Corridor Project’s publication: “Protecting Your Communities Natural Resources: A Land Protection Toolbox of Local Government”

The Green Corridor Project is dedicated to helping Washington and Chicago County residents keep the beautiful, undeveloped, rural lands and special natural areas that make this area unique. The project is an independent action of the County to protect public and private organizations through the use of this sheet. For more information call 1-800-Enchanted Minnesota or visit their website to learn more.

Fact Sheets in This Series

1. The Green Corridor Project
2. Mapping Open Spaces for Tomorrow
3. The Land Protection Toolbox
4. Protecting Conservation Foremost
5. Preservation of Development Rights
6. Land Acquisition
7. Implementing Open Space Protection

Funding for this project approved by the Minnesota Legislature: ML1997, Chapter 216, Section 15, subdivision 9(d) as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund
Land Acquisition

Land acquisition is a process in which a public agency or nonprofit land conservation organization purchases all the ownership rights to the land from a willing seller.

**What are the public benefits of acquiring land for conservation?**

- Special Management Needs of Waterways and Other Sensitive Areas Can Be Met
- People Can Enjoy Public Access for Education and Recreation

Public ownership of land may be the best choice when local governments need full control of the land. Drinking water sources and land by lakes and rivers may need special management to protect water quality. Environmentally sensitive lands such as steep slopes and areas with native plants or wildlife may need special care. People may want public access to the land for education and recreation.

**What advantages can the landowner enjoy?**

- Landowner Paid Full Fair Market Value
- Landowner May Receive Tax Benefits with a Donation of the Land’s Value
- Landowner May Exchange Land to Avoid Tax Liability

Landowners are paid full fair market value based on an independent appraisal of their land. They may enjoy tax benefits by donating all or part of the value of their land or by exchanging land (purchasing another property within a short period of time).

**How does a public agency or nonprofit organization acquire land?**

**What is the process?**

First, the landowner and a public agency or a nonprofit conservation organization (such as the Trust for Public Land) negotiate an option or an agreement to purchase the land at a certain time and at a price based upon the appraised fair market value. The agency or the nonprofit organization then identifies and secures funding for purchasing the land and takes care of real estate transaction details: appraisal of the land’s fair market value, environmental assessment, title investigation, and land survey. The final step is transferring the land’s ownership and payment on a specific date, known as the closing.

**What are some ways to structure a purchase to meet public agency and landowner needs?**

- Landowner Can Continue Living on the Land
- Payment Can Be Spread Out Over Time

To provide for a landowner who wants to continue living on the land, a public agency can delay public control of all or a portion of the land by negotiating a life estate or a lease-back arrangement. With a life estate, the public agency pays the landowner fair market value for the land minus the value of the landowner’s use during his or her lifetime, which depends on the projected life span of the landowner. The landowner receives payment during his or her lifetime and continues to live on the land.
For tax planning reasons, a landowner may prefer to receive several payments spread over time instead of one large sum at closing; lease-purchase and annuities are two potential methods to meet the landowner’s needs. In a lease-purchase, the agency purchases the land after making lease payments through an agreed-upon time period; the title is conveyed to the agency when the last lease payment is made. The total cost is usually the land’s fair market value at the time of the agreement plus interest. With an annuity, a buyer purchases an annuity benefiting the seller and receives title to the land. The seller receives annuity payments, a set dollar amount, over time.

Payment by the agency can be spread out or made in one lump sum. For budgetary reasons, a public agency may prefer to pay over time. With a lease-purchase involving only the seller (described above), the agency pays the seller directly over time. When the seller wants to receive a lump sum, but the agency can only pay over time, the agency can use a variety of financing strategies to purchase the land. Please refer to the Financing Land Protection Fact Sheet in this series for more information on financing public purchase of land for conservation.

WHERE DO PUBLIC AGENCIES SECURE FUNDS TO PURCHASE LAND?

Funding is available from many different sources, both private and public. Local sources used elsewhere in the United States are property taxes, special assessment districts, sales and use taxes, real estate transfer taxes, impact fees, bonds, and user fees. Other public sources are state matching grants, mitigation funds, and habitat protection funds. Corporations, foundations, and individuals may contribute private funds. Being creative about funding strategies and assembling funding from several sources may make land protection possible when it would otherwise be difficult. The Financing Land Protection Fact Sheet in this series provides more information about funding sources.

HOW CAN LAND PROTECTION AND DEVELOPMENT BE COMBINED?

- **Limited Development May Be a Solution**

In some cases, the most important part of the land can be protected while the rest of the land is developed in a manner which is compatible with the public open space and is sensitive to community interests. Limited development may generate sufficient funds to preserve open space without public funds.

To learn more about purchase of land by public agencies or nonprofit organizations, contact the Trust for Public Land.

For more information on these tools, refer to the other fact sheets in this series.

Funding for this project approved by the Minnesota Legislature: ML1997, Chapter 216, Section 15, subdivision 9(d) as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund
Two new survey reports now available from the Trust for Public Land:

Surveys of Voter Attitudes Toward Open Space Protection in Washington and Chisago Counties

The executive summaries and reports of two public opinion surveys in Washington and Chisago counties are now available. These surveys were designed to help local leaders in the two counties evaluate land conservation and public financing options for their communities. It shows that 85% of voters in each of the two counties feel it is important to protect more open space and a majority are willing to pay for it.

The Trust for Public Land (TPL) is a nonprofit land conservation organization which assists communities nationwide in achieving their park and open space conservation goals. We have conducted public opinion polling on open space and funding priorities for communities to plan land protection and funding strategies. When a community decides to acquire land, we can handle details of the real estate transaction, provide assistance in identifying and securing funding, coordinate funding sources, and help mobilize public support in bond referendum campaigns and other public finance situations.

The Green Corridor Project is an independent network of eight local public and private organizations working to protect land in Minnesota’s Chisago and Washington counties. The members of this collaborative are: 1000 Friends of Minnesota, Chisago County, Land Stewardship Project, Minnesota Farmers Union, Minnesota Land Trust, Rural Community Initiative, The Trust for Public Land and Washington County.

If you would like to order either or both of these surveys, please fill out and return the form below.

*Funding for this project approved by the Minnesota Legislature: ML1997, Chapter 216, Section 15, subdivision 9D as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund.

A Survey of Voter Attitudes Toward Open Space Protection

**Chisago County**
- Executive Summary (5 pp.)  $3.00 x _____ copies = $_____
- Report (29 pp.) $5.00 x _____ copies = $_____

**Washington County**
- Executive Summary (5 pp.) $3.00 x _____ copies = $_____
- Report (33 pp.) $5.00 x _____ copies = $_____

Sales Tax: Minnesota residents add 6.5% sales tax
- Subtotal _____ x 0.065 = $_____

Shipping (for one set of executive summary and report)
- $1.50 x _____ copies = $_____
- TOTAL = $_____

Through the generosity of the Legislative Commission on Minnesota Resources, free copies of the handbook are available to local government officials and staff in Chisago and Washington counties. Check the box below for a free copy.

I am a government official or staff member in Chisago or Washington County. Send me a free copy.

Name ___________________________ Organization ___________________________
Address ___________________________ Phone ___________________________
City, State, Zip ___________________________

Send order form and a check payable to the Trust for Public Land, 420 N. Fifth Street, Suite 865, Minneapolis, MN 55401. For more information, call TPL at (612) 338-8494.
If you care about the future of your land, you’ll want to order these two books from 1000 Friends of Minnesota:

**Preserving Family Lands — Essential Tax Strategies for the Landowner** and

**Book II — More Planning Strategies for the Future**

If you have land you love, you may have an estate tax problem. The land may have become so valuable that it has to be sold to pay the estate tax. Written by tax attorney Stephen J. Small, these books are invaluable tools for landowners in such a situation. The first volume (99 pages) provides an introduction to:

- Conservation easements.
- Income and estate tax benefits available for donations of conservation easements.
- Estate and gift tax rules.
- Gifts by will and gifts of remainder interests.
- Appraisal issues and information about potential donee organizations.

Book II (119 pages) covers:

- How the basic estate and gift tax rules work.
- Why you should never put family land in a corporation.
- Basic rules about partnerships and trusts.
- When charitable remainder trusts, private foundations and life insurance may be useful planning tools for landowners.
- What every landowner should know about estate planning.

These books are being made available by the Green Corridor Project. This initiative is an independent network of eight local public and private organizations working to protect land in Minnesota’s Chisago and Washington counties. The members of this network are 1000 Friends of Minnesota, Land Stewardship Project, Chisago County, Minnesota Farmers Union, Minnesota Land Trust, Rural Community Initiative, The Trust for Public Land and Washington County. Funding of this project approved by the Minnesota Legislature: ML 1997, Chapter 216, Section 15, subdivision 9D as recommended by the LegislativeCommission on Minnesota Resources, from the Environmental Trust Fund. For more information on the Green Corridor Project, call Michael Pressman at (651)312-1000.

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**Preserving Family Lands**

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<tr>
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Name ___________________________ Phone ___________________________

Address ___________________________________________________________

City, State, ZIP __________________________________________________

Send order form and a check payable to 1000 FOM to: 1000 Friends of Minnesota, 370 Selby Ave, Suite 300, Saint Paul, MN 55102; for information on bulk orders, call (651) 312-1000.
This 18-minute video discusses ways communities can protect the beautiful countryside, farmland and special natural areas that are being developed at a phenomenal rate in many regions. In an entertaining, easy-to-understand manner, it describes how citizens and organizations in Wisconsin, Maryland, Pennsylvania and California have used innovative land protection tools to preserve their special landscapes. This program, which was produced by award-winning Blue Moon Productions of Minneapolis, is one of the resources being offered by the Green Corridor Project.

This initiative is an independent network of eight local public and private organizations working to protect land in Minnesota’s Chisago and Washington counties. The members of this network are 1000 Friends of Minnesota, Land Stewardship Project, Chisago County, Minnesota Farmers Union, Minnesota Land Trust, Rural Community Initiative, The Trust for Public Land and Washington County. For more information on the Green Corridor Project, call Michael Pressman at (651)312-1000.

*Funding of this project approved by the Minnesota Legislature: ML 1997, Chapter 216, Section 15, subdivision 9D as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund.

Green Corridors: Open Spaces for Tomorrow

$12 per copy (includes postage & handling)

Name

Address

City, State, ZIP

Send order form and a check payable to 1000 FOM to: 1000 Friends of Minnesota, 370 Selby Ave, Suite 300, Saint Paul, MN 55102; for information on bulk orders, call (651) 312-1000.
A new handbook now available from 1000 Friends of Minnesota:

Protecting Your Community’s Natural Resources: A Land Protection Toolbox for Local Government

A local government’s how-to guide to protecting the landscape we love.

This 128-page handbook is a step-by-step practical guide to effective tools for protecting land. It details how local communities can create land protection programs using land acquisition, donated conservation easements, purchase of development rights (PDR), and transfer of development rights (TDR). This manual concludes with a hand glossary of terms.

Some of the nation’s leading authorities on land protection helped put this publication together. It was written by Biko Associates, Inc., for the Green Corridor Project. * This initiative is an independent network of eight local public and private organizations working to protect land in Minnesota’s Chisago and Washington counties. The members of this network are 1000 Friends of Minnesota, Land Stewardship Project, Chisago County, Minnesota Farmers Union, Minnesota Land Trust, Rural Community Initiative, The Trust for Public Land and Washington County. For more information on the Green Corridor Project, call Michael Pressman at (651)312-1000.

Through the generosity of the Legislative Commission on Minnesota Resources, free copies of the handbook are available to local government officials and staff in Chisago and Washington counties. Check the box below for a free copy.

*Funding of this project approved by the Minnesota Legislature: ML 1997, Chapter 216, Section 15, subdivision 9D as recommended by the Legislative Commission on Minnesota Resources, from the Environmental Trust Fund.

Protecting Your Community’s Natural Resources: A Land Protection Toolbox for Local Government

$14.75 per copy
$13.25 for 1000 Friends of Minnesota members
(add $2.80 for shipping and handling: Plus Minn. residents add 6.5% sales tax)

$14.75 x ___ copies = $

$13.25 x ___ copies = $

Minnesota residents
add 6.5% sales tax = $

$2.80 (shipping) x ___ copies = $

TOTAL = $

☐ I am a government official or staff member in Chisago or Washington county. Send me a free copy.

Name
Organization
Phone

Address
City, State, ZIP

Send order form and a check payable to 1000 FOM to: 1000 Friends of Minnesota, 370 Selby Ave, Suite 300, Saint Paul, MN 55102; for information on bulk orders, call (651) 312-1000.
Week 7

The main theme for this week is ecological design and alternatives to conventional suburban design.

Designing with nature can greatly increase the energy efficiency of new developments while reducing their impact on ecosystem processes. Sustainability requires knowledge of place and working with nature. Having completed and handed-in their knowledge of place quizzes, the students have a good foundation for a lecture on principles of ecological design.

Few developers are able or willing to do ecological design or anything unconventional. They level the site and superimpose the usual model. Why take a risk when everything they build sells? Antelope Commons is a new development in Lincoln NE that is designed to foster a sense of community and to respect the natural features of the landscape. It offers a mixture of housing types, commercial enterprises on-site, common open space, housing clusters, traffic calming, pedestrian trails, and solar access for each home site. The designers of the development, Alex Maller (UNL College of Architecture) and Keith Dubas, present a lecture describing the development, the barriers imposed by city regulations, and the principles that guided their planning. The architectural guidelines for the development are presented in this section.

Readings from Under the Blade include Case Study 14, a detailed look at Antelope Commons, and Chapter 6, Ethics and Aesthetics in the Loss of Farmland. Our land ethic, or lack of one, has a great deal to do with our land use decisions. Our response to the built environment is often an aesthetic response.

Materials in this section:

Example answers for Knowledge of Place Quiz
Sun trajectories diagram
Lecture notes and illustrations: Principles of Ecological Design (Cecil Steward)
Journal article: “Completely off the grid” (first page only)
Flier: Lincoln Green Building Group
Antelope Commons architectural guidelines (Maller, Dubas)
Knowledge of Place Quiz

All questions should be answered in relation to the place where you live. Depending on the scale of the question, this would be your house/apartment or your town/city.

Your name: Richard Olson

Street address of your dwelling: 4233 Y St, Lincoln, NE 68503

Longitude and latitude of your dwelling: Longitude: 96°40' W, latitude: 40° 49' 30" N

Brief description of your dwelling and the lot it is located on:

Single-level house, 600 square feet, on a heavily-treed 40' x 100' foot lot in a residential neighborhood.

Hydrology

1. How many gallons of water does your household use per year? 18,000 gallons

2. Describe the path that water takes from the time it falls as rain until it flows from your faucet.

Precipitation falls within the Platte River watershed above Ashland, NE; water from the Platte recharges the groundwater at Ashland, NE; the main Lincoln wells are just south of Highway 6; water is treated at the Ashland Water Treatment Plant, then pumped approximately 25 miles to Lincoln.

3. During a heavy rain, describe the first hundred miles of the path that water takes after it runs off your property.

Runs off onto Y Street and into storm sewer at 42nd and Y; gravity flow is generally north/northwest to Deadman’s Run, which flows into Salt Creek, which flows northeast to the Platte River, which flows east from its intersection with Salt Creek until it enters the Missouri River.

4. Is your dwelling located in a floodplain? No.
Nutrient cycling and waste assimilation

1. Describe the path and ultimate fate of your waste after the toilet is flushed.

Flows northwest in sewers to treatment plant at 27th and Theresa Street; treated effluent is discharged into Salt Creek, while sludge is spread on farm fields throughout the county or placed in Lincoln landfill.

2. Where does your garbage go? How many years until that repository is full?

Bluff Road Sanitary Landfill located north of Lincoln at Highway 77 and Bluff Road. According to Mike DeKalb of the Lincoln Planning Department, the landfill has 20 years capacity remaining.

Energy

1. How many kilocalories of solar energy fall on each square meter of your site each year?

http://solstice.crest.org/renewables/solrad/data/hl/index.html (National Renewable Energy Laboratory): For Omaha, NE, a flat-plate collector at 0° tilt receives an annual average daily solar radiation load of 4.2 kWh/m²/day. At 860 kcal/kWh x 365 days = 1,318,380 kcals.

Pimentel and Pimentel (1996), p.13: 1.4 x 10¹⁰ kcal/ha/yr is a good average for total amount of solar energy reaching the earth’s surface in the temperate region. This equals 1,400,000 kcal/m²/yr.

2. On the longest day of the year, what direction should a solar collector face and what angle should it be tilted (relative to horizontal) to maximize energy capture? On the shortest day of the year?

Solar collectors operate at optimum efficiency when placed perpendicular to the path of the sun. Collectors should be mounted facing due south (not magnetic south). At the summer solstice, set the tilt angle (relative to a horizontal line) at the local latitude minus 15°. At the winter solstice, set the tilt angle at the latitude plus 15°. For Lincoln, solar collectors would be set at an angle of 25° on June 22, and 55° on December 22 (Schaeffer 1992).
3. How many kilocalories of energy does your house or apartment use each year in the form of electricity? natural gas? heating oil?

Annual natural gas use: 1040 ccf (hundred cubic feet) = approximately 26,208,000 kcal.

(From http://www.naturalgas.com/consumer/measuring.html, 1 cubic foot of natural gas equals on average 1000 Btu.)

(For comparison, an average person’s food requirement is 2000 kcal/day x 365 days = 730,000 kcal/year.)

Annual electricity use: 2750 kWh x 859 kcal/kWh = 2,362,250 kcal

Average annual residential use of electricity by Lincoln Electric System customers was 9500 kWh in 1997. National residential average was 10092 kWh.

4. Where and how is your electricity generated? What percent of your electricity comes from each source?

<table>
<thead>
<tr>
<th>Station name</th>
<th>Location</th>
<th>Fuel</th>
<th>% of LES electricity</th>
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<tbody>
<tr>
<td>Laramie River</td>
<td>Wheatland, WY</td>
<td>coal</td>
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<tr>
<td>Cooper Nuclear</td>
<td>Nebraska City, NE</td>
<td>uranium</td>
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<tr>
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<td>Missouri River</td>
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<td>SW 12th</td>
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<td>Misc purchases</td>
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<td></td>
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</tr>
<tr>
<td>Wind</td>
<td></td>
<td>wind</td>
<td>tiny</td>
</tr>
</tbody>
</table>

Source: Russ Reno, Public Information Supervisor, Lincoln Electric System
5. What percent of your food is grown within Nebraska?

The Rodale Press funded the Cornucopia Project in the late 1970s to analyze food systems of various states. The estimated proportion of food consumed that was imported from out of state was: Kansas (41%), Colorado (45%), Texas (31%), New York (75%). With the increasing globalization of the food system, these percentages are likely to have increased by 1999. From conversations with various experts, estimates of the percent of Nebraska’s food consumption that is produced within the state ranged from 10% to 50%, with the lower percentages most likely.

Neil Hamilton (Drake University) estimates that 10% of Iowa’s food is produced within the state.

6. What is the average distance that a bite of food travels from the field to your table?

1300 miles (figure commonly cited for U.S.)

7. How many calories are expended in growing, processing, and transporting each calorie of food that you eat?

10 calories (Gussow 1991)

Climate

1. What is the average annual precipitation? 26.9” at Lincoln Airport

2. During the ten-year period 1986 through 1995, how many years had average precipitation (defined as +/- 10% of longterm average)?

Two years; 1990 and 1991.

3. On average, how is total annual precipitation distributed among Jan-Mar, April-June, July-Sept, Oct-Dec. (% in each quarter)

12/40/33/15

4. What are the average dates of the first and last frost?

October 17, April 20 (Hanson 1990)
October 15, May 15 (Hodges, pers comm)
5. What is the mean monthly maximum and minimum temperature for January? For July?

January average maximum = 30.4°F; average minimum = 8.9°F
July average maximum = 89.5°F; average minimum = 65.6°F

6. What is the predominate wind direction in winter? Summer?

Winter: from the northwest
Summer: from the southeast

(Climatic Atlas of Nebraska)

**Topography and soils**

1. Describe the main soil Order of your site.

Mollisol; formed under grasslands; characterized by thick, dark surface horizon with high levels of soil organic matter and bases; excellent agricultural soils. (Brady, The Nature and Properties of Soils)

2. What is the elevation of your site? 1195 feet

3. What is the slope and aspect of the site on which your dwelling is located? Aspect is northwest, slope < 2%

4. What direction does your house or apartment face? North

**Natural communities**

1. What is the name of the main vegetation type that occupied the region in which you live before European settlement?

Tallgrass prairie

2. Name five of the main native plant species of this vegetation type.

Big bluestem, little bluestem, indiangrass, switchgrass, sideoats grama

3. Name five native mammals of your region.

Bison, grey wolf, coyote, white-tailed deer, eastern cottontail
Human community

1. What is the population of your city or town?

Population of Lincoln is 210,000 (Omaha World Herald, 31 Jan 99, p. R-59).

2. What is the rate of growth of the population (per cent per year)?

Growth rate July 1, 1990 through June 30, 1995 was 1.3% (Lincoln Journal Star). Increase from July 1996 to July 1997 was approximately 1.0% (US Bureau of the Census).

3. At this annual rate, how long will it take the population to double?

At 1% annual increase, population takes 70 years to double.

References


Seasonal Sun Trajectories at 40°N Latitude.

Facts Out of Context and Elsewhere

Number of cokes drunk per minute around the world: 311,111

Amount spent in 1993 by the Kellogg Corporation to advertise and promote Fruit Loops cereal: $43 million
Amount spent in 1993 by the U.S.-based Heart and Stroke Foundation to promote healthy eating for heart and stroke prevention: $500,000

Miles the typical mouthful of food in the United States travels from farm to dinner plate: 1,300

Of the 1 billion pounds of insecticide used in the United States each year, less than 1% actually reaches a pest.

Proportion of all adult Americans who, once out of school, have never read a single book: nearly 60%

Number of Americans with two or more homes: 10 million
Number of homeless Americans in 1990: 300,000

Estimated number of people worldwide who live on less than $1 per day: 1 billion

One fifth of the world’s population receives 80% of the annual income, while the bottom one fifth receives 2% of the income.

For every 4,000 miles driven, one ton of carbon dioxide goes into the atmosphere.

By improving automobile efficiency by only 3 miles per gallon, the US could eliminate Mideast oil imports.

The construction, maintenance and operation of buildings, plus the transportation of people and goods in the US account for 74% of energy consumed.

Percentage of US energy needs that could be provided by wind power (US govt study): 100%.
Some observations:

- Prosperity is not inevitable.
- Change is inevitable.
- The pace of change seems to be quickening.
- The human-created systems of science, technologies, economics, social relationships, and political considerations are becoming more chaotic, more diverse, and more complex.
- The natural systems are threatened by human systems.
- Waste, once produced, must be recycled into useful resources.
- People are part of a closed system, and the processes of the natural environment, being unitary, must be a part of the design and planning process.
- There are interrelationships between the man-made and natural environments, and any changes to part of the system affect the entire system.

Sustainability requires a transition:

FROM measures of quality of life by counting possessions, TO measures through the quality of surrounding natural systems and personal relationships (community).

FROM an economy of centralization, remoteness, and global characteristics TO localization, self-sufficiency, and regional cooperation.

FROM a culture of consumption and disposability TO reuse, recycle, and conserve.

FROM a culture that values new more than old or historic TO a respect for history and preservation.

FROM a commercial vision of bigness TO small, incremental, local responsibility.

FROM a culture of mobility, impermanence and independence TO permanence and interdependence.
Society is comprised of five interacting domains: environmental, political, economic, technological, socio-cultural (E/PETS). A sustainable society will require certain attitudes and actions within each domain.

ENVIRONMENTAL

- Education and values which recognize the earth as a finite, fragile ecological system.
- Cultural acknowledgment that humans are the greatest threat to the natural systems of the earth, and that by separation of human systems from natural systems we pose the greatest threat to our survival.
- Every decision that we make — locally, nationally, and globally — has environmental consequences.

POLITICAL

- A political system that encourages and facilitates citizen participation in decisions affecting the environment, the social/cultural community, technology, and the economy.
- A political system that employs the processes of planning, policy-making, design and action for sustainability in both governmental and private sectors.

ECONOMIC

- An economic system that is able to generate surpluses and knowledge on a self-reliant and sustained basis.
- A production system that respects the obligation to preserve the ecological systems of the planet.
- An economic system that promotes equity of both input and returns among people.
TECHNOLOGICAL

• Technology has been the instrument of the rapid depletion of the planet’s natural resources.

• Technology and design often create the opposite of the intended effect.

• New and developing communications may, however, allow new patterns of community and sustainable life-styles to emerge.

SOCIO-CULTURAL

• A social system that provides for community and group solutions to the tensions among people.

• A framework of communities which support the development of shared cultural values, visions of the future, and celebrations.

• A respect for the preservation and memory of human history.
ECOLOGICAL PRINCIPLES

- Resilience, not stability.
- A systems property/interdependence ("System: Elements that share one or more relationships to form a set of interacting components.")
- Ecosystems are characterized not only by their parts, but also by the interaction among these parts.
- Ecosystems have evolved in time and are defined in part by their history.
- Ecosystems are not homogeneous structures, but present a spatial mosaic of biological and physical characteristics.
- Ecosystems present a variety of structural properties such as thresholds, lags, limits, controls, and discontinuities.
- Ecosystems are also characterized by flows of energy, and by cycles of matter.

SUSTAINABILITY VALUES/ATTITUDE

An Environmental Design Ethic:

The welfare of human endeavors and domains (E/PETS) depends upon the ecological sustainability of natural systems.

The present state of progressive degradation of the environment by human actions is unacceptable.

Natural resources are limited.

An appreciation of the fragility and beauty of nature and of the interdependence and equal importance of all life forms.

An appreciation of the dependence of human life on the resources of a finite planet.

A commitment to identify the interrelationships and interdependencies between E/PETS and the sectors of human organizations and governments.
Steward 24 February 1999

Green Development Design

Design to fit the site.

Design to respect the context.

Design to foster community.

Design for resource efficiency.

Design for minimum waste (construction, operations, rehabilitation).

Design for a healthful indoor environment.

Design for adaptability.

Design for durability and easy maintenance.

Design for profit and economic vitality.

The Four Process Elements of Green Development

Whole-systems thinking

Front-loaded design

End-use/least-cost considerations

Teamwork

Men will not believe what does not fit in with their plans or suit their prearrangements.

Barbara Tuchman
Energy Cycle

From "Human Energy Production as a Process in the Biosphere" by S. Fred Singer. Copyright © 1970 by Scientific American, Inc. All rights reserved.
energy consumption per capita per day
units = watt hour

From "The Flow of Energy in an Industrial Society" by Earl Cook, Copyright © 1971 by Scientific American, Inc. All rights reserved.
groupings of retail or office buildings
listed in order of increased thermal efficiency

single unit

lowest thermal efficiency

strip center

U-shape

open mall plan

highest thermal efficiency

closed atrium

open mall
proportional heat loss for various residential units

single house   small apartment   high rise

clusters and townhouses can be arranged to minimize heat loss and maximize winter solar collection
agriculture
earth
cooling

summer

earth
cooling

cooling
summer winds

winter

cold north winds
NORTH
heat retention
winter sun

summer

winter

mesa verde
living space on the south

blocks out cold north winds

buffer space on the north
(closets, circulation)

mechanical rooms on north

warm rooms in the center (bathrooms)

greenhouse on the south

open to the sun
section

high return air

thermal inertia
heat from floor

Oct. 15 sun angle

Sept. 1 sun angle

winter sun enters spaces

9am-3pm winter sun
90% of the winter insolation

west facing plenum for exhaust of summer heat

northside vents for venting and cooling

plan

section
ventilating roof turbine

glass below roof turbine enhances heat stack effect

reflective roof

air type solar collector

skylight provides natural lighting for windowless stair tower

low vent admits cool air

high vents exhaust summer heat

south facing greenhouse

protected south airlock entrance

south driveway east garage entrance

wingwall protects southwest entrance

reflective west windows

MOUNTAIN RESIDENCE NEAR EVERGREEN

Floor Area 2364 square feet
Collector Area 490 square feet
Solar Collector Air type
Solar Collector Supplier Solaron Corporation
Heat Storage 0.4 tons of gravel
Completed In bidding phase
Architect Lawrence C. Atkinson
Crowther/Solar Group
Case Study

September/October 1998 Issue

**Completely Off the Grid**

French for Sun House, Chez Soleil in Austin, TX, exemplifies green building techniques including passive solar, photovoltaics, rainwater catchment, a wetlands septic system, and more.

*By Stephen K. Beers*

On first glance, this appealing limestone home has it all — comfort, modern appliances, along with a beautiful view of rugged hills and a nearby lake. On closer inspection, however, what’s most astounding about this residence is what it doesn’t have — no utilities whatsoever, except for the telephone. There are no wires for electricity and no pipes for water or wastewater.

The owner/designer of this unique home, Paul Breaux, is quick to tell you that this is not an eccentric flight to primitivism. “As you can see, this isn’t a Unabomber shack,” he jokes. The house, called Chez Soleil (French for Sun House), is designed to be a demonstration of solar energy technology that is completely self-sufficient and operating off the utility grid. A three-bedroom, two-and-a-half bath house with 2,000 square feet of living space, Chez Soleil provides all standard creature comforts of a fairly luxurious middle-class home, but it runs entirely on renewable resources.

Breaux, a physicist, conceived the idea for a completely self-sufficient house while still a graduate student in the late 1970s. President Carter’s speeches inspired him to think about what he could do to help cope with the nation’s energy crisis. While he pursued a career in optical science in the defense/aerospace industries, Breaux continued tinkering with solar home designs in his head. In the 1980s he built a model for his home, read journals and attended various workshops. Then, his move from New Mexico to Austin, TX, in the early ’90s suddenly sparked a more active phase of his longtime interest in solar living. In Austin, Breaux met kindred spirits in the Sustainable Building Coalition, the Sierra Club and other groups who encouraged his interest in energy and green building.

When Breaux decided to build Chez Soleil in 1994, his first challenge was location. While Austin’s green builders and solar tinkerers inspired Breaux, he had to go outside the city limits to build his dream home. “I knew that I had to get away from subdivisions and from city codes, that a lot of them actually forbid some of the features I wanted to use, often for no apparent reason, other than aesthetics. Metal roofs are forbidden in a lot of subdivisions, because people don’t think they look good, even though they’re by far the most efficient and long-lasting roof material you can get.”

Breaux finally found his 10-acre rural home site along Lime Creek Road, several miles northwest of Austin, near the town of Leander. Cedar-clad slopes in a rugged canyon afforded pleasing views of nearby Lake Travis. No municipal water or sewer services were available as yet. This was no problem to someone who wanted to build a self-sufficient home.

The core of Breaux’s design for renewable self-sufficiency is passive solar architecture. The home is partially dug into a hill on the north side of the dwelling, what Breaux terms an “earth-coupled high thermal mass design.” This partially earth-sheltered design takes advantage of the fact that underground temperatures are more stable than surface temperatures. Breaux notes, “Around here and through the whole South, the average ground temperature is 70 degrees, deep down, all year round, which is perfect.” As a result, the temperature inside the house doesn’t fluctuate more than two or three degrees a day. Concrete floors and the foot-thick double limestone and cinder block walls act to connect the house thermally to the ground temperature and also, to decouple it from the outside air temperature. The exterior shell wall acts as a radiant barrier.
SUSTAINABILITY:
meeting our needs in the present without compromising the potential of future
generations meeting their needs.

Sustainable building practices consider environmental and human health and well-being, in addition to the
traditional criteria of function, cost and aesthetics. Conservation and continuous cyclic use of materials,
methods, water, natural resources and energy are major considerations when designing and building
sustainably.

Green or sustainable building involves three main issues:

1) Efficient use of all resources (energy, water, material, and land) and minimization of waste,
2) Conservation of the natural environment, the source of all of our resources,
3) Creation of a healthy built environment for existing and future generations.


Characteristics of Sustainably Built Environments
--Sarah Holland and David Foley, Holland and Foley Building Design, Northport, Maine USA

**Health**
Sustainable buildings provide healthy indoor air, non-toxic materials, natural daylight, good
acoustics, and a sense of place. They avoid poisons, disorientation, noise, and stress. We feel
strong, whole and calm in them, not sick and stifled.

**Adaptability**
Buildings which are hard to change get torn down. Sustainable buildings can change and adapt to new
uses and new needs. Adaptable buildings are continually improved. Upgrading a building usually
takes fewer resources and less money than building from scratch. Buildings which evolve come
to be loved.

**Resource Stewardship**
Sustainable buildings use materials efficiently and avoid materials which despoil the environment.
When possible, old materials are salvaged and reused, new materials are made from recycled
ones, and waste during construction is minimized.

**Energy Efficiency**
Sustainable buildings are easy to heat, cool and light. Thick insulation and south-facing glass lower
oil bills and tanker spills. Home workplaces lessen commutes and new highway construction.
Compact fluorescent bulbs cut the electric bill and the need for new power plants.

**Comfort**
Sustainable environments provide simple comfort, helping us feel fully alive and at peace. They are a
pleasure to be in. Sustainable buildings fit our patterns of life, engaging our minds, nourishing our
hearts and delighting our senses.

**Spirit**
Sustainable environments speak to our souls and strengthen our bonds to nature and the universe.
They encourage reflection, and support our full range of feelings. We are reminded of life’s passing, but shown a glimpse of something eternal.

**Space Efficiency**
Good design can provide our needs without wasting space, freeing our budgets for high-quality,
healthy and durable construction. Compact buildings are easier to tailor to sites, cost less, are
easier to heat and maintain, and focus on long-term value, instead of short-term glitz.

**Respect**
Sustainable environments can't be created by arrogance or greed, but only in collaboration with
their users, and with respect for those who do the work. Sustainable buildings are good neighbors.
Sustainable buildings emphasize long-term value over short-term profit. Above all, sustainable
buildings respect the future.

**Durability**
Sustainable buildings are designed and built to last. They are easy to maintain and repair, avoid cheap
materials, fussy details, and shoddy work. They have excellent drainage, sturdy structure, thorough
weatherproofing, and careful craftsmanship. They are heirlooms.

**Harmony with Place**
A sustainable building grows from its site, accepting the site's gifts and respecting its limits. The
building's design is tailored to a unique place and climate.

By the Green Building Group of Lincoln, NE.
ANTELOPE COMMONS ARCHITECTURAL GUIDELINES

PHASE ONE.

Single Family Dwellings and Two Family Dwellings

notes:
1. The guidelines listed and described below are in addition to the covenants of the Antelope Commons Planned Unit Development and an integral part of the Declaration of Covenants and the Standards adopted by the Planned Unit Development.
2. The drawings available for review in the office of the Antelope Commons Association, describing in 1"=30' scale the existing and designed site features and attributes for each block included in phase one of the development, are an integral part of this guideline document.
3. Permit requests must address the relevant guidelines and be submitted according to the procedure indicated in these guidelines.

1.0. Environmental guidelines

A. Native vegetation
a. Existing vegetation.
   All vegetation in place, on private, common or public land shall be considered as existing vegetation. Removal of existing vegetation which is not indicated as preserved, [see block / cluster site plans] shall be shown on the private site plan as part of the request for building permit. The documentation shall be attached to the site landscape plan and include: material to be removed, methods of removal, location of removed material and relation to the new landscape plan.

b. Preserved vegetation.
   Vegetation specifically identified in the Planned Unit Development approved documentation is protected and should not be removed. Removal or changes of preserved vegetation on private land may be considered only by special request to the Association. Approval of special requests will include a determination by the professional representative of the contingent conditions placed on the applicant by such approval. Unauthorized changes or damage to this vegetation will require compensation to the Association for complete replacement of the resource, including labor and management costs during establishment.
B. Wetland protection.
   a. Designated areas and restricted use.
      All areas identified in the "Mitigation Plan" submitted to the Army Corps of
      Engineers are designated areas for wetland protection. The use in the
      designated areas is as specified in the Plan and is subject to the approval of the
      Association.
   b. Protected vegetation and plants.
      All introduced or naturalized wetland vegetation species approved by the
      Association is protected.
   c. Pond Maintenance and Permanent Pond Elevation.
      The Association shall be responsible to manage the maintenance of the
      ponds, their construction, the life sustainability of vegetation, fishery and wildlife
      according to the technical specifications on file with the Association. These
      specifications may be updated from time to time by qualified experts.

2.0. Site design guidelines.

A. Topography and site features.
   a. Response to the character of land form and site attributes.
      Each site has been located in a manner that optimizes the land form and
      the site attributes. Trees marked on the plan have to be preserved and are
      considered a site asset. Building location shall minimize the impact of cut and fill.
      Additional attributes and restrictions for each individual lot are marked on the
      landscape plans of the clusters on file with the Association.
   b. Soil and foundation studies.
      Soil studies shall be conducted for all buildings to be constructed along
      wetlands' shores and on slope greater than 9%.
   c. Site drainage.
      All site plans must indicate surface drainage patterns. All grading within
      the development must relate to and blend into the surrounding landscape.
      Private drainage should be directed toward the common areas and not toward
      neighboring lots.
   d. Access, driveways, garages and parking.
      Drives to aprons in front of garages must conform to the attached site
      plan of the clusters. Each garage will be approached through a parking apron of
      18' / 20". Adjacent drives must be separated by the setback areas of a minimum
      of three feet from property line. The separation area of the two lots must be
      professionally landscaped. The construction and maintenance of all driveways
      shall be the responsibility of the owner. Driveways and parking areas must be
      crowned and sloped for adequate drainage and safety.
      Construction materials for driveways and parking shall be consistent with
      the materials of the adjacent commons, restrict weed growth and maintain a
      clearly defined edge between landscaped area and the driveway surface.
      Materials shall withstand deterioration from winter snow plowing and erosion.
The design and the finishes of the garage must be consistent with the design and finishes of the main dwelling building [same style, same materials, similar proportions, same architectural details]

B. Utilities.

note: All utility pedestals and transformers shall be located in accessible areas for service and yet not highly visible from adjoining common places or properties. Meters and other utility boxes may be concealed with landscaping, provided utility personnel are able to access equipment as needed.

a. Water.
   Water systems are owned and maintained by the City of Lincoln Public Works Department. Owners are encouraged to use water saving appliances and devices in the design and building of the residences.

b. Sewage.
   Sewage systems are owned and maintained by the City of Lincoln Public Works Department.

c. Garbage and refusal disposal.
   Garbage containers must be enclosed inside a constructed enclosure, such as a garage, dedicated annex, closet, all to be placed inside the yardline and may only be set out on collection days.

d. Exterior lighting.
   [1] in the commons
   Street lighting fixtures along 80th Street shall be located between the pedestrian path and the traffic lanes. The lighting shall be of the “down” lighting type similar to those used by the city and fixtures should emit approximately 12000 lumens below the horizontal. Lighting shall be coordinated in a manner that illuminates intersections, the pedestrian crossing and the identification signage for each common. Lighting shall not radiate into adjacent properties, “Flood” lighting, if required for traffic safety, will be minimal.
   Exterior lighting fixtures inside the commons and other footways shall be of concrete or noncorrosive metal, and mounting height shall not exceed 13’ and be anchored to reinforced concrete pedestals of a minimum of 2’ height. Spacing should not exceed 175’ with a light distribution of approximately 3000 lumen. The fixture shall conceal the light sources. The light shall be yellow. Lighting shall be “down” type and shall not radiate horizontally.
   Before installation the selection of fixtures shall be verified and tested in full scale and real life conditions, by the professional representative.

   [2] on private lots
   Light sources shall be used only to accent the architecture, landscape, artwork and safety lighting. Flashing, blinking or moving lights shall not be used. Temporary holiday ornamental lights are allowed.

d. Solar energy and solar collectors.
Solar collectors and all additional connected equipment must be integrated in the design and construction of the building in a manner that reduces the visibility of the equipment. The equipment shall be specified in the permit request for review and approval. Solar energy equipment placed separately from the building is prohibited.

e. Mail distribution.

Mail shall be delivered to common structures in clustered units located in the commons according to the site plan.

C. Landscape

note: Landscaping of private lots should begin immediately following substantial completion of the exterior of the residence and must provide 100% ground coverage within the current growing season.

a. Landscape theme

[1]. Commons.
"Urban Forest" is the theme of all types of commons which accept vehicle egress. These areas will consist of a broad hierarchy of plants from overstory trees to prostrate ground covers. Plantings will consist of recognized landscape varieties with prejudice towards very hardy and naturalized selections that work to protect and support each other. Turf or "grass" will not be accepted.

"Urban forest" landscape theme, as defined above, is the preferred form for private landscape because it increases energy efficiency, protects natural resources and increased privacy. Turf areas are allowed but shall not exceed 10% of the lot's area. Allowed turf types are: hard fescues, buffalo grass and similar water wise and low maintenance varieties.

Kennels must be located adjacent to the structure and within the yardline, so that screen walls act to integrate kennels into the design of the building and the site.

[3]. Main Commons.
The Main Commons will be managed by the Association.
Landscape theme for the Main Commons is primarily "turf". This resource is intended, along with the adjacent City of Lincoln Park on the project's southern border, to provide the residents of Antelope Commons with active and passive recreational areas and gardens. The access to the Main Commons will be made available to all residents of Antelope Commons.

[4]. Community Gardens.
The Community Gardens will be managed by the Association and assigned for use to residents of the multiple dwellings and townhouses for predetermined periods of time.

[5]. Riparian Forest and Wetlands.
The Riparian Forests and Wetlands will be managed by the Association. Landscape theme for the wetland complex and accompanying forest is "native" vegetation. Colonizing, naturally occurring plants, and those suitable for zero-maintenance environments are required.
b. Topsoil.
Topsoil resource is required to a minimum depth of twelve [12] inches and the construction process must preserve the existing topsoil for reuse in final grading. Should any lot fail to contain sufficient topsoil for the minimum 12 inches, the developer will provide the necessary amount, at no expense, at the request of the lot owner.

c. Subsoil.
Subsoil excavated in the process of construction shall be removed at the expense of the lot owner.

d. Transition Areas.
Where formal or groomed plantings in the private lots give way to the landscaping of the common spaces a transition must be provided. This transition must give priority to the landscaping of the commons in the design of the private landscape.

e. Edges.
Where formal or groomed planting gives way to the natural landscape, the transition should be defined. This can be accomplished through a natural transition using perennial wildflowers or shrub beds or through elements such as pathways.

f. Screening.
Planting can be used effectively to screen yards and decks for privacy and to avoid glare from sources such as automobile head lamps. Sightlines at roadways shall be preserved by maintenance of 30" planting height. As a basic climatic consideration, clusters of evergreens should be placed on the north and west sides of a building to provide a wind break from prevailing winter winds. Deciduous trees and shrubs shall be placed on the southern side to provide shade in the summer months and allow sun to penetrate to the building during winter months.

g. Plant selection.
Landscapes should give preference to native or adapted species. Plant materials with historical maintenance problems may not be installed [the approved list of plant materials is on file with the Association]. Plants located in snow storage areas or in areas of snow and ice shedding should be able to withstand the accumulated snow loads.

h. Stone, paving, poured concrete and other hard surface.
Expansion joints should be executed according to approved details and specifications. Prefabricated elements must be compatible with preapproved industry standards and installed according to the requirements of the producer.

i. Gravel, cobbles and other flexible surfaces.
Execution of all and every type of flexible surface will be implemented based on full scale samples approved by the professional representative of the Association and available on site for verification. Samples will include all attributes of the finished surfaces, such as composition, texture, size of aggregates, durability and color.

j. Street and commons furniture.
All items shall be executed or purchased based on a full scale sample approved by the professional representative of the Association and available on
site for verification. Location and installation of items shall be executed according to fully detailed plans and specifications approved by the professional representative of the Association.

k. Landscape Maintenance.

   note: The Association shall be responsible for the maintenance of all Commons according to the final plans and specifications initially implemented. Future changes need to include adequate maintenance specifications.

   The Association will be responsible for snow and leaf removal from all commons. The removal will be performed using equipment of minimum level of noise, air, water and chemical pollution.

   The Association will be responsible for the maintenance of all hard surface finishes in all common areas. This maintenance includes: paving replacement, concrete repairs of surfaces, edges, culverts and curbs.

   The Association will be responsible to operate and maintain in all commons the following systems and services: cleaning, irrigation, fertilizing, mowing, over seeding, pest control, replacement and removal, trimming, thatching and composting.

   The Association will be responsible to operate and maintain all systems and services necessary to preserve the wetlands including: water levels, fishery, silt and vegetation management.

   [5] Lighting and outdoor furniture and common facilities and equipment.
   The Association is responsible for the operation and maintenance of all lighting systems and fixtures in the common areas. Also, the Association will be responsible for common equipment and outdoor furniture in all commons such as: mailbox clusters, wells, signs and signage, trash receptacles, tables, benches and recreational equipment. The service will include: daily management, replacement, and seasonal and holiday installations and maintenance.

   The Association will be responsible for the maintenance and upkeep of activity areas and their utilities: interpretive centers, sledding, ice skating, fishing, boating, cross-country skiing, walking trails, lawn bowling, croquet, boardwalk, and open play turf areas.

   The Association shall be responsible for the management and maintenance of the Community Gardens and the Greenhouse including: seasonal repairs, land upgrading, assignments of plots, winterization of garden plots and complete maintenance of the Greenhouse including the upkeep of tool storage.
D. Building Design Guidelines

a. Building construction.


[2] The selection and composition of materials used on the exterior of the building should be continuous and consistent around surfaces of the residence.

b. Entrances to buildings.

[1] Entrance level should be placed at a minimum of 20” above surrounding finished grade

[2] Entrances to residences must be clearly visible from the common areas, highly distinct from garage doors.

[3] Entrances should be accessed through covered and unenclosed front porches of min. 80 sq.ft. and max. 400 sq. ft. The area of front porches is an integral part of the buildable area allowed on the specific lot.

[4] Soffits and ceilings of porches and entrance coverings shall not exceed 9 feet from the landing or porch floor.

c. Roof form.

[1] Relation to adjacent properties:

Buildings shall be designed in a manner that will minimize the obstruction of southern sun light from the fenestration of adjacent buildings. [note: see diagrams in guideline plans]

d. Chimney, flues and vents.

[1] Chimney for fireplaces should be used to create visual contrast to the dominant roof forms of the building. All fireplace flues shall be enclosed with a chimney cap and fitted with a spark arrestor. All chimney forms shall relate to the overall building. No chimney enclosure shall be clad in wood.

[2] Chimneys and flues shall be located to avoid smoke and fumes at ground levels created by downdraft winds. Buildings designed with unique roof configurations shall give special attention to down drafts. All chimneys shall be located according to code.

[3] Building vents and flues for such functions as ventilation and exhaust should be consolidated into structures, wherever possible, and should typically be concealed from public view.

e. Air conditioners.

The air conditioning compressor and fan shall be the only mechanical component permitted to be located outside the building. The compressor shall be placed adjacent to the building, inside the yardline and concealed from public view.

f. Building color.

Exterior color schemes throughout Antelope Commons shall include white or organic colors. Large exterior wall surfaces shall be painted or stained with white or organic colors. Attention should be given to the color contrast between
basic wall surfaces and accented details. Changes in exterior color scheme shall be submitted to the review of the professional representative and the approval of the Association.

g. Energy conservation.
All residential buildings shall meet the following minimum standards for roof and exterior wall insulation:
- Roofs: R - 38 [R- 50 recommended]
- Walls: R - 15
- Floors above uninhabited spaces: R - 19
- Basement walls: R - 15 - if the basement is a finished habitable space.
  R - 9 - if the basement is an unfinished space.

h. Fire protection regulation.
[1] Compliance with Fire District Regulation
Street signage shall be clearly visible to emergency vehicles from the adjacent street at all times.
[2.1] There shall be no exterior fires whatsoever except barbecue fires contained within properly designed receptacles. All bulk storage of combustible fuels is prohibited.
[2.2] Fireplaces, wood stoves and Pellet stoves
Residents are encouraged to burn only natural gas or low emission solid fuel in a solid fuel burning device such as a wood burning fireplace, wood stove, or pellet stove. Solid material fuel, such as wood, may be stored on the property, inside the yardline, in an area which is not visible from common areas or adjacent properties.
Wood stoves are acceptable solid fuel burning devices, but must be fitted with a catalytic converter and meet all clean air standards.
Chimney and flues shall be cleaned and checked regularly according to the requirements of the manufacturer. Spark arrestors shall be provided around the mouth of the chimney, or vent of any heater, stove or fireplace. Spark arrestors shall be cleaned regularly to remove deposits.
In-doors sprinklers are highly recommended to increase safety and reduce insurance rates.

i. Construction regulations.
[1] Noise abatement and hours of work:
Construction noises shall be prohibited earlier than 8 A.M. and later than 6 P.M.
[2] Construction staging and material storage:
All construction staging, including but not limited to, material storage, equipment storage, construction trailers, etc., must take place within the lot for which the building permit was issued unless an alternate staging area is approved in writing by the Association.
[3] Trash containment and removal:
Trash and construction debris shall be kept in containers, and be removed on a regular basis to insure sufficient room to store trash at the end of each working day. It shall be the responsibility of the general contractor to remove and
dispose of, at an authorized county trash fill, any excess trash and construction debris.

Trees and other existing and protected vegetation need to be managed in compliance with the above mentioned regulations [see paragraph 2.A.]. Construction practices must include care during grading and excavation to avoid damage to existing trees, shrubs and their root structures. Trees to be removed for excavation of the driveway, building, etc., shall be identified with surveyor's ribbon and shall be approved by the professional representative of the Association. At this time trees to be protected by fencing shall be identified and shall be fenced or protected by other means to prevent damage. The radius of fencing shall be minimum 5 feet. Excavation shall not commence until this process has not been completed.

All construction equipment and activity including stockpiling of materials and topsoil must be kept within the perimeter of the lot unless written authorization is received from the Association. Any adjacent property including roads or commons damaged during construction shall be promptly restored and revegetated to the satisfaction of the professional representative of the Association. If such restoration is not completed promptly, the Association will contract for the improvements with all costs charged to the person in whose name the building permit was issued.

All disturbed areas of the site shall be protected from erosion during and after the construction period. The site plan should include adequate erosion control measures and include provisions for soil stabilization, sediment control and timely re-vegetation.

It is the responsibility of the owner of the building permit to insure that the contractor or builder does invite in due course the professional representative of the Association for the necessary site inspections and approvals. The professional representative will not inspect projects for building code conformance. The representative will, however, from time to time review the construction sites for conformance to the urban design standards and the design guidelines. Each contractor will keep a site log in which written records of reported site visits will be filled, signed and dated by the professional representative. A copy of the record will be provided to the Association.

It is the responsibility of the permit holder and/or the builder/contractor to contact the Lincoln Building and Safety Departments regarding all required inspections for building code conformance.

F. Sign regulation.

a. Residence addresses.
Each dwelling shall display a brass plated number placed horizontally on the front of the porch, near or above the front door, visible from the common access.

b. Real-estate for sale.
Sale signage of 5 sq.ft. shall be placed inside the lot boundaries. Any additional placement of sale signage needs the approval of the Association manager.

c. Signage for Antelope Commons.
The signage for Antelope Commons scheme will be maintained by the Association.

d. Street & commons signage.
   [1] The numbering of residences along 80th street will comply with the codes of the City of Lincoln.
   [2] The numbering of residences around the Commons will run consecutively and the numbers shall be marked on the sign of each Common;

e. Interpretative & information installations and signage.
   Structures and signage serving the interpretative station will be maintained by the Association.

ANTELOPE COMMONS ARCHITECTURAL GUIDELINES

SUBMITTAL AND REVIEW PROCESS

A. Process:
   The design review process must be followed for any of the following:
   • construction of any building;
   • renovation, expansion or refurbishing of the exterior of any building;
   • major landscape, road or parking changes; and
   • exterior lighting changes.

   All plans submitted to the Developer / Association shall be of an architectural quality prepared by a licensed architect or approved home designer. The professional representative of the Developer / Association shall have the authority to reject materials, designs and colors submitted with the plans, and the plans themselves, if they are not compatible or are inappropriate with the overall plan of the subdivision.

   The Antelope Commons Design Review Process has two steps:
   Sketch Plan Review and Final Plan Approval.

   It is recommended that owners follow this two step process for any major building project, however, owners may submit materials for Final Plan Review and Approval without a Sketch Plan Review. In addition, the owner may appeal the professional representative’s decision to the Developer / Association Board.

B. Sketch Plan Review.
   The Sketch Plan Review addresses the conceptual design of the project. The review will address existing and planned site and building improvements, building floor plans and elevations, roof design, architectural character or expression, exterior materials, grading drainage and erosion control measures.
See Sketch Plan Review Checklist and Evaluation Criteria for complete submission requirements.

The Sketch Plan Review includes the following steps:
1. Owner/Architect prepare and submit to the Professional Representative two copies of the Sketch Plan which will include all the information required by the Sketch Plan Review Checklist.
2. The Professional Representative reviews sketch plan at scheduled meeting and notifies owner in writing of the findings within 10 working days.
3. If necessary the owner may resubmit a Sketch Plan or appeal within thirty days.

C. Final Plan Review & Approval.

The Final Plan Review & Approval addresses the final design details of the project. The review will address existing and planned site and building improvements, building floor plans and elevations, building sections, roof design, architectural character or expression, exterior materials, grading drainage and erosion control measures. See Final Plan Review Checklist and Evaluation Criteria for complete submission requirements.

The Final Plan Review includes the following steps:
1. Upon the approval of the Sketch Plan the Owner/Architect prepare and submit to the Professional Representative two copies of the Final Plan which shall include all the information required by the Final Plan Review Checklist.
2. The Professional Representative will notify owner in writing of the Final Plan Approval decision within 10 working days. If no Sketch Plan was reviewed the Professional Representative may delay the decision until 15 working days.
3. Upon issuance of written Approval, owner may apply for building permit from the Building and Safety Departments of the City of Lincoln.

Flow chart of review:

**SKETCH PLAN REVIEW**

- Submit 2 copies to Prof. Rep.
- Review by Prof. Rep. notify owner in 10 w.d.
- Resubmit or appeal

**FINAL PLAN REVIEW**

- Submit 2 copies to Prof. Rep.
- Review by Prof. Rep. notify owner in 10w. days
- Apply for Municipal Building Permit
D. Plan review checklists:

Sketch Plan Review Checklist:

Date: ____________ block: ____________ lot: ____________

Owner's
name: ____________________ tel.: ____________ address: ________________

Architect's
name: ____________________ tel.: ____________ address: ________________

Builder's
name: ____________________ tel.: ____________ address: ________________

Prepare and submit to the Professional Representative 2 copies of the preliminary design in conceptual drawing form to describe the following:

1.[......] Site plans indicating building envelope, floor elevations in relation to site elevations [0 = +] easements, setbacks, existing trees, stream corridors, landscape materials, new and existing contours @ 1'0" intervals, site drainage, orientation of garage, driveway materials and width, location of site section. [scale: 1/8" = 1']

2.[......] Roof design [1/8" = 1'0"] [to be included in the site plan] to clearly show location and sizes of gutters and downsprouts.

3.[......] Site section indicating ridge line location, % of slope, extent of cut and fill, conformance with building height restrictions. [scale: 1/8" = 1']

4.[......] Floor plans [scale: 1/8" = 1'0"]

5.[......] Exterior elevations of all sides of proposed buildings [1/8" = 1'0"]

6.[......] Exterior materials

7.[......] Building Height Sketch showing height

8.[......] Written statement summarizing setback, height, square footage and proposed construction and whether any variance requests will be made.

Sketch Plan Review Evaluation and Criteria:
(a) Compliance with the covenants and guidelines [..................]
(b) Documentation is clear and accurate. [..................]
(c) All variances requests regarding these regulations are clearly defined and in writing. [..................]

NOTES:
Final Plan Review Checklist

date: ____________  block ____________  lot ____________

Owner's
name: __________________ tel: __________ address: ______________

Architect's
name: __________________ tel: __________ address: ______________

Builder's
name: __________________ tel: __________ address: ______________

Two copies of all necessary materials for the Final Plan Review & Approval must be submitted to the Professional Representative at least 10 days prior to their scheduled meeting. The Professional Representative can only approve a final plan submittal when each of the items listed below has been submitted and approved.

1.0.[......] GENERAL

1.1.[......] Antelope Commons Plan Review Fee
1.2.[......] Square footage summary
1.3.[......] Statement of building height and building height calculations.

2.0.[......] SITE PLAN [scale 1/8"= 1'] minimum requirements:

2.1.[......] Property boundaries
2.2.[......] Easements and setbacks
2.3.[......] Existing and proposed contours at two foot intervals
2.4.[......] Building footprint, including location of air conditioning compressor
2.5.[......] Trash enclosure
2.6.[......] Proposed walks, wall screens, driveways, parking, decks, pools, patios, accessory buildings and all site improvements.
2.7.[......] Materials to be utilized for construction of walks, driveways, decks, pools, patios.
2.8.[......] Surface drainage
2.9.[......] Finished floor elevations.

3.0. [.....] LANDSCAPE and IRRIGATION PLAN [same scale as site plan]

3.1. [.....] Extent and location of all plant materials and landscape features
3.2. [.....] Final grading, extent of cut and fill
3.3. [.....] Plant schedule identifying material and quantities to be used
3.4. [.....] Proposed treatment of all ground surfaces [turf, ground cover, mulch, pavers, etc.]
3.5. [.....] Extent of turf areas to be mowed and irrigated [transition zone maintained, irrigation method indicated]
3.6. Existing plant materials and natural site features [trees, waterfronts] which are included and/or affecting the site.

3.7. Proposed seed mixes and rate

3.8. Lighting location, type and wattage

3.9. Details of specific landscape features.

3.10. Irrigation systems - specify:

4.0. BUILDING DOCUMENTATION [1/8" = 1'0"] minimum requirements:

4.1. Floor plans

4.2. Roof plan including gutters and down sprouts

4.3. Sections

4.4. Elevations

4.5. Materials specifications

4.6. Solar verification, including solar energy equipment specification

4.7. Color scheme

4.8. Significant details

NOTES:
LINCOLN IS BETWEEN 40° 43' AND 40° 52' NORTH LATITUDE

IMPORTANT SUN ANGLES @ 12:00
DEC 21  26.5°
SEPT & MARCH 21  90°
JUNE 21  72.5°

IMPORTANT SUN ANGLES
DEC 21 @ 9:00 & 14°
3:00

ADJACENT ATTACHMENTS FROM "DESIGN STANDARDS FOR ZONING REGULATIONS" OCTOBER 6, 1979
LINCOLN CITY COUNCIL

MARCH 21 @ 12:00 NOON
32.8°

MARCH 21 @ 9:00 AM AND 3:00 PM
50°

NOTE:
DESIGN ANGLE TO BE USED IS 90° ALTITUDE @ 12:00 NOON BUILDING SHADOW PLAN TO SHOW ON SITE PLAN OF SUBMISSION FOR SKETCH AND FINAL PLAN REVIEW BY PROFESSIONAL REPRESENTATIVE OF ANTELOPE COMMONS. BOTH ALTITUDE AND AZIMUTH ANGLE TO BE USED IN PREPARATION OF SHADOW PLAN.

PLAN
SCALE: 1" = 50'-0"
SOLAR ACCESS
Primary topic: Lincoln/Lancaster County land use trends and planning.

Observing land use changes and planning processes in one's own community is an important supplement to reading and lectures. The city of Lincoln and Lancaster County provide a laboratory for studying the urbanization of rural landscapes—all of the elements of this complex process are evident here.

A lecture by Mike DeKalb of the Lincoln/Lancaster County planning department provides background on land use trends and condition for Lincoln and the surrounding county. The handout from the lecture, which provides statistics for this area, is included in this section. This material prepares the class for a half-day field trip from the urban center of Lincoln to the suburban edge to the outer rural areas.

Readings from Under the Blade include three case studies from Virginia that provide a good overview of the challenges facing planners in rapidly developing areas, and some of the options for regulating growth and preserving agricultural land and open space. Case Study 13 describes the impact that school placement has on sprawl in Lincoln NE.

Materials in this section:

Information packet on Lincoln/Lancaster Co. planning and land use
Lincoln field trip information
Urbanization of Rural Landscapes
March 3, 1999

By Mike DeKalb, Lincoln Lancaster County Planning Department.

Part 1
What the Plan says, Trends; population, city growth, building permits, farming.

Part 2
Techniques and tools;

The Plan is policy, not law

Zoning: density and land use. Since 1926 in Lincoln, 1963 in Lancaster County
AG - 20 acre minimum lot size district
AGR - 3 acre minimum lot size zoning
Farmstead split off, to one acre
clustering is allowed by special permit, 20% bonus for environmental,
 farming, or solar access design.
overlays such as floodplain and airport approach zones
"Grandfathering" protects pre-existing legally created lots and uses.

Subdivision (the creation of parcels 10 acres or less in size), requires water
information on quality and quantity.

Annexation - automatic with a plat abutting the city, required for city sewer and
water

extra territorial jurisdiction, Lincoln regs apply 3 miles from the city limits, since
1929, other towns have one mile jurisdiction.

Lincoln Municipal sewer and water must be in the city to receive (policy)

Two rural water districts in the S. E. part of the city and county, need city approval
to expand in the 3 mile.

School automatically moves with City Limits.

Fire Department moves with City limits, into Rural Fire Districts (repayment
formula)

**Capital Improvements Plan** (CIP) and County 1&6 budget. The government infrastructure of where and when for pipes, roads, schools, bridges, trails, parks, etc. 

No other area may **incorporate** within 5 miles of an existing incorporated town.

**Sanitary Improvement Districts** (quasi governmental entities) for subdivision to issue bonds for sewer, water, streets, etc.) must be approved by the jurisdiction and is generally discouraged in Lincoln’s jurisdiction.

**Health Regulations** are joint City and County for wells, septic tank, lagoons, etc.

The **Lower Platte South NRD** has all (almost) of Lancaster County in a Ground Water Management area.

**Conservation Easements** are allowed and sometimes required. Need local approval.

**Taxation**- “green belt” allows deferential assessment. Dual value of market and farm with a three year rollback capture if the land is changed.
Lancaster County:

Lancaster County is located in the southeast corner of Nebraska, approximately 32 miles west of Iowa and 37 miles north of Kansas.

Lancaster County is 846 square miles in area, being about 36 miles in width and 48 miles in length north-south. The population in 1994 was 225,743 persons, 90% of whom lived in Lincoln. Lincoln is the County Seat as well as the State Capitol. The city of Lincoln occupies about 70 square miles of the county.

Lancaster county was formed in 1855 by the Territorial Legislature. The first European-American settler in Lancaster county arrived in 1856 and settled near present day Roca.

There are 13 incorporated towns in the County; Bennet, Davey, Denton, Firth, Hallam, Hickman, Lincoln, Malcolm, Panama, Raymond, Roca, Sprague, and Waverly.

There are 1,359 farms in the county and 536,888 acres, 77% of the county, in farm production.

There are 13 public school districts serving the county and 4 mayor colleges, the University of Nebraska Lincoln, Union College, Wesleyan University, and Southeast Community College.

The county includes over 400 miles of warm-water streams and 13 Recreational Lake facilities ranging in size from 20 to 1,800 acres of water surface. The county also has about 65 miles of trails.

The county is served by the Lincoln Municipal Airport. Rail service by the Burlington and Union Pacific Rail Roads. Highways include the Interstate 80, U.S. Highways 77, 34, and 6, and State Highways 2, 33, 43 and 79. The City of Lincoln operates a local bus system named "Star Tran".

Public safety is by the Lancaster County Sheriff and the Lincoln Police Department. There are 17 Rural Fire Districts and the Lincoln Fire Department. All county emergency services are coordinated through 911. There are three major hospitals in Lincoln.
Lincoln/Lancaster Profile

1990 census data reveals:

**Population**
- 75,530 households in Lincoln with population of 191,172
- 7,655 households in balance of county with population of 21,059

**Income**
- 1990 Median Household Income: $28,056
- 20,521 (10.7%) persons were below poverty rate
- 42.9% incomes at or below 80% of City median income
- Percentage of minority population in very-low- and low-income categories greater than whites
- 11,261 owner-occupied households at or below 80% median income. Greater than 36% are experiencing cost burden problem.
- 43.2% of renters at or below 80% median income are experiencing cost burden

**Housing**
- In 1990, home ownership was 58.11% in Lincoln and 65.4% in balance of county.
- 41.9% of the units are occupied by renters and 14.6% in balance of county.
- 20.3% of the homes in Lincoln were constructed prior to 1939; 81% in the balance of the county.
- There was a 10% increase in single family units in Lincoln between 1980-1990; and 24% increase in multi-family units.
- The 5 lowest census districts of home ownership are located in the central district.
- The central district has 38% of the City's occupied rental units.

*Other facts and figures relating to Lancaster County.*

Demographic trends that were extrapolated from 1990 Census and published by the Consortium for Planning and Advocacy:
- The population of Lancaster County has been growing at a faster rate than Nebraska as a whole. Between the years 1970 and 1990, the population of Lancaster County increased 27.2 percent, compared to a 6.4 percent increase for the entire state.
- The population in Lancaster County is gradually aging, consistent with national trends. Between the years 1970 and 1990, the Lancaster County population under age 18 decreased 7.4 percent while the population aged 65 and older increased one percent.
- The nonwhite population in Lancaster County is gradually increasing with the most significant growth occurring in the Asian American population.

Average sale price of single-family residential sales in Lincoln YTD 10/97 - $106,921; 10.66% increase over 2 years ago.

Total number of dwelling units in Lincoln as of 1/1/96 is 90,600; multi-family 26,264; and single family/duplex 64,336.

Lincoln Housing Authority (LHA) owns and manages 1,044 units with 130 more units in development as Wood Bridge Project. LHA provides tenant-based rental assistance for another 2,797 units. As of 11/97, LHA had 2,303 applications for housing assistance on a waiting list; 1,779 of the requests are for Section 8 assistance.

U.S. Census annual estimates of population completed 7/1/96 for Lincoln and Lancaster County are:
- Lancaster County: 231,765
- Lincoln: 209,192
- Balance of County: 22,573

There has been a 8.23% increase in population in Lincoln since 1990.
Lancaster County, Nebraska
1990
Figure 16
LINCOLN'S LAND USE PLAN

LEGEND

- Residential, Urban
- Residential, Low Density
- Commercial
- Industrial
- Parks and Open Space
- Future Service Limit

- Public and Semi-Public
- Wetland and Water Bodies
- Natural / Environmentally Sensitive
- Agricultural
- Urban Village

MILES

March 17, 1998 (Amendment No. 94-01,3,4,5,6,7,8,10,14,16,23)
The Analysis assumed a County-wide population base of 350,000 persons, with no predetermined rate of growth. The areas were utilized to calculate future capital infrastructure costs and to identify other growth impacts.

The four Directional Growth Areas will form the basis for further planning analysis as part of the South and East Beltway MIS, Antelope Valley MIS, and other on-going planning efforts.

The Directional Growth Analysis included an assessment of growth contained within the "Future Service Limit" boundary. This analysis was termed the "Build Out Scenario."
LANCASTER COUNTY PRIME FARMLAND
(Soil Rating of 1 to 4 out of 10)
**SOIL NAME**

### LANCASTER COUNTY, NEBRASKA

SOILS WITHIN THE FOLLOWING MAP UNITS ARE IDENTIFIED AS PRIME FARMLAND:

<table>
<thead>
<tr>
<th>MAP SYMBOL</th>
<th>SOIL NAME</th>
<th>ACRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bw</td>
<td>Butler silt loam, terrace, 0 to 1 percent slopes 1/</td>
<td>2,050</td>
</tr>
<tr>
<td>Bu</td>
<td>Butler silt loam, 0 to 1 percent slopes 1/</td>
<td>2,000</td>
</tr>
<tr>
<td>Co</td>
<td>Colo silty clay loam, 0 to 2 percent slopes 1/</td>
<td>2,900</td>
</tr>
<tr>
<td>Cr</td>
<td>Crete silt loam, terrace, 0 to 1 percent slopes</td>
<td>4,000</td>
</tr>
<tr>
<td>Ct</td>
<td>Crete silt loam, 0 to 2 percent slopes</td>
<td>9,200</td>
</tr>
<tr>
<td>CrB</td>
<td>Crete silty clay loam, terrace, 1 to 3 percent slopes</td>
<td>4,000</td>
</tr>
<tr>
<td>CrC</td>
<td>Crete silty clay loam, terrace, 3 to 6 percent slopes</td>
<td>1,450</td>
</tr>
<tr>
<td>JfC</td>
<td>Judson fine sandy loam, 2 to 6 percent slopes</td>
<td>330</td>
</tr>
<tr>
<td>JuC</td>
<td>Judson silt loam, 2 to 6 percent slopes</td>
<td>29,500</td>
</tr>
<tr>
<td>Ke</td>
<td>Kennebec silt loam, 0 to 2 percent slopes</td>
<td>22,900</td>
</tr>
<tr>
<td>Lm</td>
<td>Lamo silty clay loam, 0 to 2 percent slopes 1/</td>
<td>1,800</td>
</tr>
<tr>
<td>No</td>
<td>Nodaway silt loam, 0 to 2 percent slopes</td>
<td>16,800</td>
</tr>
<tr>
<td>ScC</td>
<td>Sharpsburg silty clay loam, terrace, 0 to 2 percent slopes</td>
<td>3,570</td>
</tr>
<tr>
<td>SkC</td>
<td>Sharpsburg silty clay loam, 2 to 5 percent slopes</td>
<td>40,750</td>
</tr>
<tr>
<td>WtB</td>
<td>Wymore silty clay loam, 0 to 1 percent slopes</td>
<td>7,450</td>
</tr>
<tr>
<td>WtC2</td>
<td>Wymore silty clay loam, 1 to 3 percent slopes</td>
<td>6,350</td>
</tr>
<tr>
<td>Zo</td>
<td>Zook silt loam, 0 to 2 percent slopes 1/</td>
<td>4,100</td>
</tr>
<tr>
<td>Zp</td>
<td>Zook silty clay loam, 0 to 2 percent slopes 1/</td>
<td>2,250</td>
</tr>
</tbody>
</table>

**Total** 252,900

1/ Where drained. This soil generally has been adequately drained either by the application of drainage measures or by incidental drainage resulting from farming operations, road building, and other land development.
### POPULATION FOR LANCASTER COUNTY AND LINCOLN CENSUS

<table>
<thead>
<tr>
<th>CENSUS</th>
<th>LANCASTER CO. POPULATION</th>
<th>LINCOLN CITY POPULATION</th>
<th>CITY POP AS A % OF COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1860</td>
<td>153</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1870</td>
<td>7,074</td>
<td>2,441</td>
<td>34.5%</td>
</tr>
<tr>
<td>1880</td>
<td>28,090</td>
<td>13,003</td>
<td>46.3%</td>
</tr>
<tr>
<td>1890</td>
<td>76,395</td>
<td>55,154</td>
<td>72.2%</td>
</tr>
<tr>
<td>1900</td>
<td>64,835</td>
<td>40,169 $^\dagger$</td>
<td>62.0%</td>
</tr>
<tr>
<td>1910</td>
<td>73,793</td>
<td>43,973</td>
<td>59.6%</td>
</tr>
<tr>
<td>1920</td>
<td>85,902</td>
<td>54,948</td>
<td>64.0%</td>
</tr>
<tr>
<td>1930</td>
<td>100,324</td>
<td>75,933</td>
<td>75.7%</td>
</tr>
<tr>
<td>1940</td>
<td>100,585</td>
<td>81,984</td>
<td>81.5%</td>
</tr>
<tr>
<td>1950</td>
<td>119,742</td>
<td>98,884</td>
<td>82.6%</td>
</tr>
<tr>
<td>1960</td>
<td>155,272</td>
<td>120,521</td>
<td>82.8%</td>
</tr>
<tr>
<td>1970</td>
<td>167,972</td>
<td>149,518</td>
<td>89.0%</td>
</tr>
<tr>
<td>1980</td>
<td>192,884</td>
<td>171,932</td>
<td>89.1%</td>
</tr>
<tr>
<td>1990</td>
<td>213,641</td>
<td>191,972</td>
<td>89.9%</td>
</tr>
</tbody>
</table>
## LINCOLN ANNEXATIONS: 1960 TO PRESENT

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ACRES ANNEXED</th>
<th>CUMULATIVE AREA (Square Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1959</td>
<td>(Base)</td>
<td>25.54</td>
</tr>
<tr>
<td>1960</td>
<td>206.5</td>
<td>25.86</td>
</tr>
<tr>
<td>1961</td>
<td>136.5</td>
<td>26.08</td>
</tr>
<tr>
<td>1962</td>
<td>4,369.1</td>
<td>32.90</td>
</tr>
<tr>
<td>1963</td>
<td>2,233.3</td>
<td>36.39</td>
</tr>
<tr>
<td>1964</td>
<td>2,173.2</td>
<td>39.79</td>
</tr>
<tr>
<td>1965</td>
<td>1,008.0</td>
<td>41.36</td>
</tr>
<tr>
<td>1966</td>
<td>3,558.1</td>
<td>46.92</td>
</tr>
<tr>
<td>1967</td>
<td>972.7</td>
<td>48.44</td>
</tr>
<tr>
<td>1968</td>
<td>637.1</td>
<td>49.44</td>
</tr>
<tr>
<td>1969</td>
<td>115.4</td>
<td>49.62</td>
</tr>
<tr>
<td>1970</td>
<td>426.9</td>
<td>50.29</td>
</tr>
<tr>
<td>1971</td>
<td>644.8</td>
<td>51.29</td>
</tr>
<tr>
<td>1972</td>
<td>55.2</td>
<td>51.38</td>
</tr>
<tr>
<td>1973</td>
<td>245.2</td>
<td>51.76</td>
</tr>
<tr>
<td>1974</td>
<td>901.7</td>
<td>53.17</td>
</tr>
<tr>
<td>1975</td>
<td>532.7</td>
<td>54.00</td>
</tr>
<tr>
<td>1976</td>
<td>710.5</td>
<td>55.11</td>
</tr>
<tr>
<td>1977</td>
<td>781.5</td>
<td>56.34</td>
</tr>
<tr>
<td>1978</td>
<td>1,003.0</td>
<td>57.90</td>
</tr>
<tr>
<td>1979</td>
<td>991.1</td>
<td>59.45</td>
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<td>1980</td>
<td>381.5</td>
<td>60.05</td>
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<tr>
<td>1981</td>
<td>77.0</td>
<td>60.17</td>
</tr>
<tr>
<td>1982</td>
<td>0.9</td>
<td>60.17</td>
</tr>
<tr>
<td>1983</td>
<td>6.2</td>
<td>60.18</td>
</tr>
<tr>
<td>1984</td>
<td>149.9</td>
<td>60.41</td>
</tr>
<tr>
<td>1985</td>
<td>36.3</td>
<td>60.47</td>
</tr>
<tr>
<td>1986</td>
<td>36.9</td>
<td>60.53</td>
</tr>
<tr>
<td>1987</td>
<td>80.5</td>
<td>60.65</td>
</tr>
<tr>
<td>1988</td>
<td>214.0</td>
<td>60.99</td>
</tr>
<tr>
<td>1989</td>
<td>1,518.7</td>
<td>63.36</td>
</tr>
<tr>
<td>1990</td>
<td>143.2</td>
<td>63.58</td>
</tr>
<tr>
<td>1991</td>
<td>266.9</td>
<td>63.91</td>
</tr>
<tr>
<td>1992</td>
<td>473.7</td>
<td>64.65</td>
</tr>
<tr>
<td>1993</td>
<td>356.5</td>
<td>65.21</td>
</tr>
<tr>
<td>1994</td>
<td>563.7</td>
<td>66.09</td>
</tr>
<tr>
<td>1995</td>
<td>271.8</td>
<td>66.51</td>
</tr>
<tr>
<td>1996</td>
<td>1,626.4</td>
<td>69.05</td>
</tr>
<tr>
<td>1997</td>
<td>433.5</td>
<td>69.73</td>
</tr>
<tr>
<td>1998</td>
<td>423.3</td>
<td>70.39</td>
</tr>
</tbody>
</table>

May 7, 1998
The following presents information for the City of Lincoln and Lancaster County as requested by Planning Commissioner Cecil Steward at the Commission's January 14, 1998 meeting.

- **Net Growth in Population**

<table>
<thead>
<tr>
<th>Date of Census or Estimate</th>
<th>Lancaster Population</th>
<th>Annualized Change</th>
<th>City of Lincoln Population</th>
<th>Annualized Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 1, 1990</td>
<td>213,641</td>
<td>--</td>
<td>191,972</td>
<td>--</td>
</tr>
<tr>
<td>July 1, 1991</td>
<td>216,756</td>
<td>1.16%</td>
<td>195,270</td>
<td>1.37%</td>
</tr>
<tr>
<td>July 1, 1992</td>
<td>220,047</td>
<td>1.52%</td>
<td>198,560</td>
<td>1.68%</td>
</tr>
<tr>
<td>July 1, 1993</td>
<td>223,708</td>
<td>1.66%</td>
<td>204,633</td>
<td>1.23%</td>
</tr>
<tr>
<td>July 1, 1994</td>
<td>226,209</td>
<td>1.12%</td>
<td>204,633</td>
<td>1.23%</td>
</tr>
<tr>
<td>July 1, 1995</td>
<td>228,638</td>
<td>1.07%</td>
<td>207,115</td>
<td>1.21%</td>
</tr>
<tr>
<td>July 1, 1996</td>
<td>231,765</td>
<td>1.37%</td>
<td>209,192</td>
<td>1.00%</td>
</tr>
</tbody>
</table>

- **Area Change to City Limits**

<table>
<thead>
<tr>
<th>Year</th>
<th>Acres Annexed</th>
<th>Cumulative Area of Lincoln</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>356.5</td>
<td>65.21</td>
</tr>
<tr>
<td>1994</td>
<td>563.7</td>
<td>66.09</td>
</tr>
<tr>
<td>1995</td>
<td>271.8</td>
<td>66.51</td>
</tr>
<tr>
<td>1996</td>
<td>1,626.4</td>
<td>69.05</td>
</tr>
<tr>
<td>1997</td>
<td>433.5</td>
<td>69.73</td>
</tr>
</tbody>
</table>

71.80
73.00
### Lincoln-Lancaster County Comprehensive Plan

**Figure 129:** Housing Units Outside Of Incorporated Areas, 1960-1990 By Township

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>West Oak</td>
<td>125</td>
<td>117</td>
<td>95</td>
<td>131</td>
</tr>
<tr>
<td>Little Salt</td>
<td>201</td>
<td>158</td>
<td>97</td>
<td>103</td>
</tr>
<tr>
<td>Rock Creek</td>
<td>142</td>
<td>127</td>
<td>98</td>
<td>113</td>
</tr>
<tr>
<td>Mill</td>
<td>97</td>
<td>105</td>
<td>76</td>
<td>80</td>
</tr>
<tr>
<td>Elk</td>
<td>299</td>
<td>199</td>
<td>124</td>
<td>124</td>
</tr>
<tr>
<td>Oak</td>
<td>192</td>
<td>168</td>
<td>149</td>
<td>140</td>
</tr>
<tr>
<td>North Bluff</td>
<td>207</td>
<td>170</td>
<td>135</td>
<td>108</td>
</tr>
<tr>
<td>Waverly</td>
<td>144</td>
<td>126</td>
<td>98</td>
<td>104</td>
</tr>
<tr>
<td>Middle Creek</td>
<td>286</td>
<td>265</td>
<td>178</td>
<td>166</td>
</tr>
<tr>
<td>Lincoln</td>
<td>213</td>
<td>378</td>
<td>223</td>
<td>127</td>
</tr>
<tr>
<td>Lancaster</td>
<td>263</td>
<td>338</td>
<td>353</td>
<td>127</td>
</tr>
<tr>
<td>Stevens Creek</td>
<td>261</td>
<td>232</td>
<td>180</td>
<td>140</td>
</tr>
<tr>
<td>Denton</td>
<td>229</td>
<td>181</td>
<td>104</td>
<td>102</td>
</tr>
<tr>
<td>Yankee Hill</td>
<td>509</td>
<td>465</td>
<td>353</td>
<td>179</td>
</tr>
<tr>
<td>Grant</td>
<td>860</td>
<td>662</td>
<td>358</td>
<td>179</td>
</tr>
<tr>
<td>Stockton</td>
<td>213</td>
<td>196</td>
<td>127</td>
<td>107</td>
</tr>
<tr>
<td>Highland</td>
<td>165</td>
<td>138</td>
<td>98</td>
<td>101</td>
</tr>
<tr>
<td>Centerville</td>
<td>270</td>
<td>240</td>
<td>171</td>
<td>153</td>
</tr>
<tr>
<td>Saltillo</td>
<td>301</td>
<td>308</td>
<td>136</td>
<td>126</td>
</tr>
<tr>
<td>Nemaha</td>
<td>182</td>
<td>143</td>
<td>110</td>
<td>121</td>
</tr>
<tr>
<td>Olive Branch</td>
<td>127</td>
<td>124</td>
<td>116</td>
<td>124</td>
</tr>
<tr>
<td>Buda</td>
<td>127</td>
<td>123</td>
<td>109</td>
<td>118</td>
</tr>
<tr>
<td>South Pass</td>
<td>227</td>
<td>211</td>
<td>154</td>
<td>162</td>
</tr>
<tr>
<td>Panama</td>
<td>133</td>
<td>124</td>
<td>110</td>
<td>116</td>
</tr>
</tbody>
</table>

**TOTAL**

1990 = 5,693
1980 = 5,100
1970 = 3,455
1960 = 3,201

January 8, 1997
TO: County Board
   Mayor Johanns
   City Council
   Planning Commission
   County Directors
   City Directors
   County Land Use Task Force Members
   County Ecological Committee
   City and Village Clerk of Lancaster County

FROM: Tim Stewart, Planning Director

SUBJECT: Rural Residential Development

DATE: July 31, 1997

In response to requests from a number of groups and individuals for more accurate data about acreage development in Lancaster County, the Planning Department, in cooperation with the County Assessor's Office, has undertaken this study of residential land use in Lancaster County, outside of the City of Lincoln. Major findings of the study include the following:

- There are 9,526 residential parcels of land in Lancaster County, outside of the City of Lincoln.

- Of this total, 7,889 parcels are occupied and 1,637 are vacant. This is a vacancy rate that approaches 20%.

- Of the total number of residential parcels, 29% are "acreage," 25% are "lots," 21% are "farms," and 25% are village residential.

- For parcels typically viewed as rural residential (neither farm nor village), there are 3,855 occupied residential parcels and 1,275 vacant residential parcels. This is a vacancy rate of 24.9%.

This report was not intended to address the many important policy questions regarding the future of residential development in Lancaster County. Nor was it intended to address such market questions as whether the vacant parcels are all buildable or if an inventory of 25% vacant parcels...
8 am: Depart Keim Hall; Follow Holdrege to 16th Street heading south.

At Y street note channeled Antelope Creek, which emerges several blocks to the southeast from a buried culvert. Bringing the buried portion of the creek to the surface within a greenway paralleling a new four-lane boulevard is part of the proposed Antelope Creek project to reduce flooding, improve downtown transportation, and spur investment in the Malone and Clinton neighborhoods.

Turn east from 16th on Vine; go to the UNL Beadle Center parking lot for first stop (Figure 1). Discussion of proposed Antelope Valley project led by Richard Sutton. Note urban redevelopment townhouses to east of Trago Park.

Depart 8:35. East on Vine to 27th; then south on 27th.

Highway 2 marks the 1960 boundary of the city. On west side of 27th, an area between Highway 2 and Heide Lane (.5 miles south of Old Cheney) was annexed in the late 1960s. The area to the east of 27th was annexed in the late 1970s. The area south of Ridge Line Road (1/3 mile north of Pine Ridge Road) to the current southern boundary of the city was annexed in the early to mid-1990s.

At Pine Lake Road, turn east and go to Beaver Creek Lane (roughly .5 miles west of S. 56th); turn right on Beaver Creek Lane, then take second left onto Sugar Creek Road; continue to undeveloped cul-de-sac at end of road. This is the southern edge of current city development (Figure 2).

9:00: Discussion of south Lincoln growth patterns and future development with Ray Hill, Lincoln/Lancaster County Planning Department. Sugar Creek houses as examples of subdivision architecture.

Depart 9:30. South on 56th; note the many acreages just outside the city services boundary; cross Yankee Hill Road, which is proposed for a four-lane arterial that would cross Wilderness Park on an elevated roadway to connect south Lincoln with Highway 77. At 56th and Saltillo Road, turn right to 54th, south on 54th to Bennet Road. The proposed route for the south beltway lies between Saltillo and Bennet Roads (Figure 3).
Drive east on Bennet to 68th; north on 68th .5 miles is proposed location of interchange for south beltway; continue to Saltillo, east on Saltillo to 70th, north on 70th to Pioneers Blvd., east on Pioneers to Antelope Commons (Figure 4), entering and parking by old Nebraska Nursery building.

10:00: Tour and discussion of Antelope Commons development (Figure 5) with architect Keith Dubas, a leader of the design team for the development.

Depart 11:00. East on Pioneers. Note that the ridge line demarcating the Stevens Creek watershed lies just east of 84th. The City/County Planning commission voted to recommend that city services be extended into the western portion of the Stevens Creek watershed (Figure 6). Stevens Creek crosses Pioneer Boulevard near 134th Street. Turn north on 138th; the route selected by the Lincoln City Council and the Lancaster County Board of Commissioners for the east beltway lies just to the east along 141st Street.

1/4 mile south of East Van Dorn, turn left on Retzlaff Lane and enter Stevens Creek Stock farm (Figure 7), established in 1858, and listed in the National Register of Historic Places.

11:15: Discussion with owners Dale and Rhoda Retzlaff, Marleen Rickersen, and other family members about the history of the farm and the Stevens Creek area, and the impact if the beltway is built.

Depart by 12:30. 138th north to East Van Dorn, west on Van Dorn to 134th, north on 134th to A Street, west on A crossing Stevens Creek to re-enter proposed urban services area, then through Walton, past more acreages, north on 84th along current edge of city. Major commercial development underway at intersection with Holdrege. West on Holdrege to East Campus.
Antelope Valley proposals

The Antelope Valley Study proposes a set of projects to revitalize central Lincoln, improve traffic and manage storm water.

Figure 1

Figure 2

Lincoln Corporate Limits
Figure 5. Overall view of the Antelope Commons model. The reconstructed wetlands and creek lie southeast to northwest along the southern boundary of the development. On the western side of the development, the Main Common is bounded by row houses, single and duplex residences, and commercial space. The eastern portion of the model shows a treed boulevard flanked by clusters of residences each centered on their own commons.
For years, land east of 84th Street in the Stevens Creek watershed was off limits to urban development. That may end. The Lincoln-Lancaster County Planning Commission has recommended the area now be considered for city services, including sewers, water and roads — all required for dense, urban-style neighborhoods and shopping centers. 

If the City Council and County Board approve the change in the Comprehensive Plan, the city eventually could grow in a wide swath along its eastern edge to Stevens Creek. The creek currently meanders through farmland in a drainage basin from U.S. 6 on the north to Old Cheney Road on the south.

The Planning Commission recommendation on Wednesday came at the request of the Homebuilders Association of Lincoln, which has wanted to develop homes in the watershed for several years.

"We wanted a discussion on the merits of growing into the watershed at the decision-maker level instead of the Planning Department level," said Homebuilders board member Rick Krueger. "That's what we are getting, and we are appreciative of the vote from the Planning Commission."
Landowners dealing with reality of pending beltway

By Jodi Fuson
Staff Reporter

RURAL LINCOLN - Recent adjustments in the east beltway route have alleviated headaches for some landowners and created more for others.

Deb Lemke is one landowner who is waiting to see where additional adjustments might be made. She and her husband, Rod, bought their home at about 141st and Alvo Road nine years ago.

Originally the beltway was to cut through farmland east of their home. But recent adjustments, so that engineers can avoid Waverly’s high school, have altered that route somewhat. “The way it’s drawn now, it would come close to our back door,” Lemke said.

A recent map shows the corridor proceeding north from the south beltway along 141st Street and then jogging back west at Alvo Road to connect up with Interstate 80 and U.S. Highway 6 near 127th Street.

“I want to see exactly where it’s going to go, not ‘Can we move it here or there?’” Lemke said. “From our standpoint, we’d like to know.

I don’t want to be on hold for 10 years.”

The Lemkes own 25 acres. A major creek runs through their property, something engineers will have to contend with, Deb said. And just east of the Lemke property is farmland that has an extensive irrigation system. The beltway would cut the property in two, making the system unusable, she said.

Lemke questions several details that have not been looked at, such as “Will the beltway have to go over Waverly’s wells south of town?” and have the studies been completed in the areas where the beltway jogs west. See map for beltway route.

Lemke believes area residents did not have fair representation on the Lancaster County Board when the route was chosen. Only three of the five members voted. Commissioners closest to the issue, District 5 representative Steve Svoboda, and District 4 representative Bernie Heier of Walton, did not vote. Svoboda was absent, and Heier could not vote because of a conflict of interest. He owns property in all three of the east routes that were being studied.

Lemke called the Lincoln City Council and Lancaster County Board’s Dec. 15 decision politically motivated. "The reasons were not justified," she said.

Landowner Marvin Hall plans to live on his farm near 141st and Havelock as long as he and his wife, Doris’ health holds out. The 68-year-old retired farmer said 160 acres of his land could be affected by the beltway.

He estimates 17 residences, are currently in its path. From his calculations, the beltway would pass within 30-60 feet of his house. "At this point my house doesn’t have any value because it’s in the beltway corridor," he said.

Hall has shared his concerns about the decreased value of his property with HWS engineers. And as for his house? He has been told that the corridor can be adjusted to miss homes.

A meandering beltway could potentially cut through more farmland and affect more residents. Art Althouse said the beltway could affect portions of 1000 acres his family farms but not necessarily his home.

See BELTWAY on Page 10
He figures 20 acres per mile will be lost to the beltway. More would be lost at the interchanges planned for every two miles. Althouse based his figures on what Interstate 80 took when it went through.

A beltway would cut several pieces of land in two, making it difficult to farm, Althouse said. Althouse lives at approximately 134th and McKelvie Road.

He is somewhat discouraged about the recent beltway corridor choice because he believes the input he provided on the South and East Beltway Citizens Advisory Committee was ignored. Althouse has served on the committee since it was formed in 1995.

"The part that's really disappointed us is they took advantage of us," Althouse said.

When he began his work on the committee, he said there were two goals presented. One was to study whether a beltway was needed and the other was to identify where to locate a beltway. "It was 1 1/2 years before we addressed whether a beltway was needed, and then it was ignored," he said.

He added that the information from the study showed the east far route was the poorest choice. "Each mile you moved it out you reduced its use by 25 percent," Althouse said.

And yet, during the committee meetings, Althouse said he was told it would be better to put the beltway out in the country away from developments. He believes farmers were perceived to be less resistant.

"It (the beltway decision) wasn't based on the facts that the engineers presented," he added. "They really don't have anything to substantiate their decision with."

And it's even harder to swallow that decision when the City of Lincoln had a big say in that decision. The vote was 4-2 in favor of the far east beltway. "It's pretty hard on you when the City of Lincoln comes out and tells us what to do with land we thought we owned," Althouse said.

Farmer Rod Otley, too, will feel the impact of the beltway if it goes through where it is currently drawn. He figures the road will come very close to his house at 141st and Adams Street. If it comes too close, he said he'll move.

"Somebody did a better job selling their idea than we did," Otley said. He is a member of the CARS group that was formed to represent landowners residing between 134th and 148th streets. CARS stands for Citizens for Accountable Route Selection.

He believes the City Council and Lancaster County Board went against the beltway study findings when they chose the east far route. The Dale and Rhoda Retzlaff family feels especially wounded because they say they didn't get an opportunity to speak before the east far route was added back into the equation. It was originally thrown out after the beltway study showed it was the least feasible route cost wise and usage wise.

The east beltway would take approximately 10 percent of the Stevens Creek Stock Farm they own just southeast of Walton. The farm is listed on the National Register of Historic Places.

The south beltway will also have impacts on the Retzlaff farm, but Rhoda said the family can live with it because it was proven it was the best route.

Marleen Rickertsen, the Retzlaff's oldest daughter, said she doesn't have much faith in how engineers will work around her family's historic property and the 12 other historical sites she has identified. "There is no writing or resolution to guarantee it won't impact those sites," she said.

Karen Miller, Dale and Rhoda's youngest daughter, and her husband, John, banked on the fact that Lincoln's comprehensive plan showed no threat of a future beltway beyond 134th Street when they decided to start a wholesale tree nursery business. "When we purchased the land in 1984 we knew for sure we were free and clear," Karen Miller said.

Now their land, located at 141st and Van Dorn, lies right in the path of the beltway. "At this point, it would take our home and our nursery," Karen said.

"If it would have been a good business decision where the facts supported it, we would have taken our lumps," John said. The decision may force him to rethink what he will do after he retires next year.

He had planned to live off of the 20-acre nursery operation. "Instead of putting money in the bank, we're putting it in the ground," John said.

Alfred O'Dell is an example of a small acreage owner living in the beltway. The beltway would cut through to the west of his 2-acre plot. "Most of the lot and buildings (his home, a garage and shed) are in the corridor," he said.

"If they build that thing they're going to pave the road that goes in front of my house (Van Dorn)," he said. He doesn't want the added noise from increased traffic on Van Dorn or from the beltway.

"Any kind of super highway that comes within a mile of me is undesirable because of the noise," he said. An interchange is also planned at Van Dorn Street.

"This highway is not designed to relieve traffic congestion in Lincoln," O'Dell said. He believes the reason Lincoln City Council members voted in favor of the farthest out corridor is because they didn't want a super highway going through prime development property. And yet, city-county planners are in no hurry to approve development east of Lincoln, according to a Jan. 5 Lincoln-Journal Star article.

O'Dell believes much of Lincoln's traffic problems could have been solved with better planning. Every mile road should have been widened, he said. "They didn't do it right in the first place, and they still aren't doing it right."

When the beltway will be built is still up in the air. City and county officials are hoping to secure federal money to fund the project.

In the mean time, engineers will be meeting with the estimated 200 landowners in the beltway area over the next few months to discuss the route in more detail, according to HWS consultant Jim Linderholm. A meeting between government officials is scheduled for early February to discuss outstanding issues between all parties involved.
WALTON - Driving onto the Stevens Creek Stock Farm southeast of Walton there is a rich sense of history that seven generations of Retzlaffs have created.

From 1858 when Charles Retzlaff first made claim to some land along Stevens Creek, to the present, the Retzlaffs have had a presence here. Retzlaff's original homestead is included in the three adjacent 80-acre sections that make up the Stevens Creek Stock Farm.

Charles Retzlaff moved to Nebraska from Walworth County, Wisconsin, in 1858, having staked his claim the year before. First he constructed a dugout along Stevens Creek and then a cabin. In 1866 or 1867 he built a limestone home that is still occupied today. The lumber came from Stevens Creek and the limestone from Bennett. Wood used for inside finishing work was transported from Nebraska City.

Three generations of Retzlaffs currently reside on the stock farm property. Charles' great-grandson, Dale, and his wife Rhoda, and Dale and Rhoda's granddaughter, Lyn Wineman, and her husband Neil and their three children.

Dale and Rhoda live next door in a more modern brick ranch home. The family's No. 1 priority is protecting the historic value of their property. The Retzlaff's farm is one of 12 historical sites that could be impacted by Lincoln's South and East Beltway.

four barns, several sheds and two windmills, will not be lost to the beltway project, a beltway would alter the quiet, country setting that one of the county's oldest farmsteads touts. In "Portrait and Biographical Album of Lancaster County, Neb.," 1888, the Retzlaff farm was referred to as one of the finest in this portion of the state.

The Retzlaffs say the selection of the east far beltway corridor Dec. 15 condemned their property and decreased its value. The corridor is plotted for approximately 141st Street, which runs adjacent to the eastern-most boundary of the farm.

"The thing they don't see is what the city sprawl will do to this area," said Karen Miller, Dale and Rhoda's youngest daughter.

"Some could say it's just land," she added. "It's a way of life." It's also the most historically significant site in Lancaster County, Miller said.

Despite the looming beltway, which may not be built for 20 years or so, the Retzlaffs plan to continue with their aggressive schedule to improve the buildings on their property. Last year they hired Waverly science teacher Ron Ropte to paint one of the barns.

This year the house that Dale and Rhoda started out in is due for a paint job. The house was originally built for George's son when he got married. It is located near 138th and Van Dorn.

Along with the historic buildings on the property, which include the limestone home and a barn built prior to 1900, the family is proud of their shorthorn cattle raising heritage.

Dale breeds shorthorns and sells the calves. He used to raise them for show and sell breeder cows.

The shorthorn tradition goes back to his great-grandfather, Charles, who purchased his first 160 acres of farmland along Stevens Creek with the intention of breeding cattle.

All of Dale and Rhoda's children showed sheep and cattle at the Nebraska State Fair for 4-H. Their granddaughter, Haze Lockee, is carrying on the shorthorn tradition. She pastures her purebred shorthorns on the property. Last summer she was named 4-H Cattle Show champion.
FAMILY FARM - The Retzlaff farm southeast of Walton is a family farm to the fullest extent. It has remained in the family for seven generations. Currently three generations reside on the property, two living in the stone home that Charles Retzlaff built in 1866 or 1867, and one living next door in a modern brick ranch home. Pictured in front of the limestone home are four generations of Retzlaffs. They include seated, Dale and Rhoda Retzlaff and granddaughter Erin Wineman, 6; standing, Brian Rickertsen holding his grandson, 23-month old Scott Wineman, the Retzlaff's three daughters, Marleen Rickertsen, Cheryl Johnson, and Karen Miller, and Marleen's daughter, Lyn Wineman and her infant daughter, Haley, and Lyn's husband Neil; back row, Cheryl's husband, Doug, Cheryl's son Mike Locke; and his girlfriend Dana Aksmit.

Reminiscences By Old Settlers
Charles F. Retzlaff of Stockton

In the fall of 1858 Joseph Gilmore and wife, Robert Farmer, Henry Petit and myself fitted out three wagons, consisting of three yoke of oxen to each wagon, in Walworth County, Wisconsin, and started for the "American Desert" then the territory of Nebraska. It took seven weeks to make the trip, which was filled with many incidents of hardship. The streams were then unbridged, and at nearly every one of them we were obliged to swim our oxen and considered ourselves very lucky many times that they were not drowned. We crossed the Mississippi at a small town above Dubuque, and got along fairly well until we reached the Skunk Bottoms in Iowa. These were crossed in what is now Jasper County. They were wide, muddy and covered with water for a distance of nearly three miles. Our route we picked out by means of a boat, one man going ahead and sounding, sticking stakes with rags or grass on the top, where it seemed most safe...

We struck Lancaster County on the Old Mormon trail and stopped on Salt Creek just above where Waverly stands, and where we found a shanty inhabited by John Loder. The prairies were broad and barren of trees and as void of settlement. Nearly every pioneer coming from the east thought he must have a claim with some timber, therefore most of the early settlers located along the streams. We spent some time in this locality looking for suitable locations...

After a few weeks stay here I came up to the mouth of Stevens Creek and gave fifty dollars for a claim of 160 acres. The east one-half of the southeast quarter of Section 5 and the west one-half of the southwest quarter of Section 4, buying it from a man named Brown. After placing two logs for a foundation for a cabin I filed my claim and returned to Wisconsin. During the winter I married, and the following spring, accompanied by my brother Carl, Peter Gardner and John Lemke, I again started west to establish a permanent home.

Source: Excerpt from Plat Book of Lancaster County, Nebraska
The Brown-Scoville Pub. Co. 1903
For descendants, land is a corridor to the past

BY MARK ANDERSEN

Wading through tall Nebraska prairie grass in 1858, Prussian immigrant Charles Retzlaff crossed Salt Creek and stopped by Stevens Creek to admire the trees and rolling land.

The creek, he reasoned, would provide a ready resource for raising thoroughbred shorthorn cattle. For $50, he purchased 160 acres, becoming the first white settler in Lancaster County. The deed for the land eventually was signed by President Abraham Lincoln.

Soon, Retzlaff had laid the foundation for a house and dug a home into the side of a hill to survive the winter. He shared tobacco with local Indians, looked ahead to fetching his wife from Wisconsin and considered the task of using an oxen team to haul limestone from Nebraska City for his new home, an arduous task, since there were no roads in the area.

On Tuesday, the Lancaster County Board of Commissioners and Lincoln City Council selected a beltway corridor that crosses the historic Stevens Creek Stock Farm built by Retzlaff. His descendants, all of whom still live on or near the property, vow to fight the placement of the future freeway.

"If there's a beltway, people talk about property values," said Lynn Wineman, 31, a direct descendant of Charles Retzlaff and granddaughter of current owners Dale and Rhoda Retzlaff.

"But we don't want to sell," she said.

"I grew up here. Maybe it's crazy, but it's always been my dream to live here and raise my children here."

With a coat, Wineman warmed her son Scott, the seventh generation of Retzlaff descendants to walk the historic farm buildings built by Charles Retzlaff.

Bellowing cows got the attention of the young boy, who talked about helping his grandpa.

Dale Retzlaff, 77, pulled his green farm tractor from the historic horse sale barn and wheeled a round bale into the herd, followed closely by a fat blue heeler named Nellie. Dale was born in the stone house built by his great-grandfather. He has spent his life on the farm.

The family will look to see what attorneys can do about keeping the beltway from crossing their land, Dale said.

The new beltway will come so close, said his wife, Rhoda, fighting tears.

"We believe in preservation and the beauty of the land," she said. The planned beltway "will ruin the whole area."

The decision is hardest on her grandparents, Wineman said. For years they have worked to keep up the historic property, painting the many wooden barns every three years at their own expense.

Reassurances from city and county officials that efforts will be made to avoid affecting historic properties do not reassure her, she said. The beltway corridor once was eliminated from consideration because of cost and impacts on historic property, she said. Officials then brought it back, and now they have selected it as the preferred beltway route.

"The fact that they say it's unlikely (the road will come across the property) doesn't mean a lot," she said.

Marleen Rickersen, Dale's daughter, said Charles Retzlaff once fought to keep 134th Street from crossing the farm. The nearest road now crosses at 138th Street. Charles became a county official and road commissioner, she said.

"We've been fighting Lincoln's traffic issues for seven generations now," Rickersen said.

ERIC GREGORY / Lincoln Journal Star

Ready to fight: Dale and Rhoda Retzlaff and dog Nellie on their historic Stevens Creek Stock Farm which lies within the beltway corridor selected as the preferred option Tuesday.
Council picks beltway route
141st Street gets preliminary nod

By Mark Andersen
Lincoln Journal Star

Quiet groans and cheers arose from about 50 people Tuesday after officials chose 141st Street as the likely route of a $170 million future Lincoln beltway.

Ann Deck, who for two years fought against putting a beltway along 127th Street near her home, had brought a photo of neighbors affected by the decision. Good news for them meant bad news for others.

"I sell real estate," Deck said, pointing to the smiling faces in the photo. Being told a beltway will cross your area "is like telling a doctor they have cancer."

Farmer John Miller, who owns property bisected by the far beltway corridor at 141st Street, said officials chose "the path of least political resistance."

Miller said his family would explore possible legal options to fight the beltway. The corridor runs near historic land, which federal laws say should be avoided if possible.

"This is a double elimination contest," Miller said, indicating he had only lost round one.

A minority of Lincoln City Council and Lancaster County Board members argued that choosing the far route ignored traffic needs by placing the beltway 60 blocks from Lincoln's eastern edge.

"I'm a little surprised and disappointed that we're not looking at the factual information rather than putting it as far away as possible," Councilman Ross Hecht said.

Choosing the far corridor ignores the findings of a $1.2 million beltway study that concluded that a middle route at 127th Street would be cheaper and would provide Lincoln with better traffic relief, Hecht said.

Those voting to select the far route at 141st Street defended their decision on a number of points:

Councilwoman Cindy Johnson said the far route would "impact the least amount of people." It is a long-term plan that will not solve the traffic problems of today but will be something Lincoln grows into, she said.

Officials have said a southern portion of the beltway could be built soon but the eastern link might wait 20 years.

Councilman Jeff Fortenberry said he supports the far route only if land in the Stevens Creek drainage basin east of Lincoln remains rural. If land along Stevens Creek develops as urban property, he said, the beltway corridor selection should be revisited.

Councilman Linda Wilson said neither the far beltway corridor nor the middle one at 127th Street would do anything to relieve the current city traffic congestion.

"If anyone thinks these beltways solve the problem of congestion now...

More on BELTWAY, Page 6A
Beltway/141st Street is likely route, but it could change

Continued from Page 1A

they’re not going to,” she said.

Commissioner Kathy Campbell
said Stevens Creek development
played a big role in her choice of the
far route. She said the study was
forced to ignore other issues of that
area.

State Sen. Don Wesely, who will
oppose Johnson next spring in the
race for Lincoln mayor, said the far
route will provide the least traffic
relief for Lincoln. “By choosing a
closer route, we could have carried
more traffic with a better cost bene-
fit for the taxpayers,” he said.

Officials had waited for comple-
tion of a $1.2 million beltway study
by HWS Consulting before selecting
a beltway corridor. Although a
southern beltway corridor between
Saltillo and Bennet roads was a
natural pick, three options remained
technically viable to the east. Offi-
cials had earlier said the path clos-
est to Lincoln contained too much
development, leaving the real
choice between the middle and far
routes.

The HWS study projected traffic
estimates 20 years into the future
and assumed the city would con-
tinue developing along projected
trends. Under the study:

■ The close route was projected
to cost $139.5 million, save motorists
one million hours and $8.7 million a
year in prevented accident costs.

■ The middle route was project-
ed to cost between $142.5 million and
$147.9 million, depending on its
southern hook up. It would have
saved drivers between 539,000 and
880,000 hours and $7.3 million a
year in accident savings.

■ The far route was projected to
cost $141.6 million, save motorists
493,000 hours annually and save $4.7
million in annual accident costs.

Waverly officials had complained
that the far route would come too
close to them, and officials have con-
ceded that it should bend closer to
Lincoln as it links with Interstate 80.
The southern corridor would con-
nect with U.S. 77 near southwest Lin-
coln to create the loop.

Jim Lindholm of HWS said
more studies remain before officials
have an exact beltway route. Tues-
day’s selection of the preferred belt-
way corridor will lead to detailed
studies within a quarter-mile wide
path. The actual road right-of-way
will be 300 feet wide, he said. In rare
instances, he said, the roadway may
veer slightly from the quarter-mile
corridor that has been selected.

Environmental and cultural im-
pacts from a road also will receive
more study. In June, engineers will
return with actual roadway options
for officials to choose. Efforts will
be made to avoid historical proper-
ties and homes.

“Not everyone will be happy with
the final details,” Lindholm said.

It is also possible that further
study could turn up flaws so serious
that officials will have to choose an-
other route, he said. Voting for the
far route were council members Co-
leen Seng, Linda Wilson, Curt Don-
aldson, Cindy Johnson and Jeff
Fortenberry. Voting against were
Ross Hecht and Jerry Shoecraft.

Voting for the far route from the
County Board were Kathy Campbell
and Linda Steinman. Voting against
was Larry Hudkins. Bernie Heier,
who owns property in the middle
route, abstained. Steve Svoboda was
absent.
Week 9

Project groups meet, and then present brief status reports to the entire class. This provides an opportunity for feedback and collaboration among the projects.

An in-class midterm exam addresses the following learning objectives:

- **Describe the major factors influencing land use decisions in the US.** Questions #1, 5
- **Describe the patterns and consequences of land conversion in the US.** Questions #2a, 3a,b
- **Demonstrate a familiarity with land use planning tools, policies, and procedures.** Questions #2b, 3c, 4
- **Identify alternatives to sprawl and other typical development patterns.** Questions #6

Example answers (provided in this section) are given to the students at the end of exam, and then discussed the following week.

Materials in this section:

- Midterm exam
- Midterm exam example answers
Urbanization of Rural Landscapes
10 March 1999

Midterm Exam

1. a. (1 point) What is the current population of the United States?
   b. (2 points) The equivalent of how many Nebraskas are added each year to the U.S. population?

2. Structure and function are closely related in landscapes. (a) (20 points) What are the structural characteristics of conventional suburbs that work against human interactions and the fostering of a sense of community? Remember that even within suburbs, structure can be analyzed at different spatial scales. (b) (5 points) Give three examples of city regulations that impede the development of community-friendly suburbs.

3. A developer purchases several farms in an agricultural area at the edge of a city with the intention of converting the farms to acreage developments. He considers the average purchase price of $6000 per acre to be a good reflection of the value of the land.
   (a) (2 points) Define the term “externality” in the context of land purchase and conversion.
   (b) (22 points) Describe the negative externalities associated with the conversion to low-density development of several farms in this urban-fringe agricultural area.
   (c) (6 points) Describe two methods that a government might use to ensure that the price of agricultural land for development more fully reflects the negative externalities associated with development.

4. (25 points) As methods that a municipality could use to preserve farmland from development, what are the strengths and weaknesses of (a) purchase of development rights, (b) transfer of development rights, (c) exclusive agricultural zoning, (d) differential assessment for property tax purposes, and (e) area-based allocation or “cluster” zoning.

5. (5 points) What is “friction of distance” and how does it relate to farmland conversion? Since WWII, has the “friction of distance” in the United States generally increased or decreased? Why?

6. Conventional and ecological design can be contrasted in terms of many different issues or characteristics. For example, the operation of conventionally designed buildings usually relies on non-renewable energy sources such as coal and nuclear, while ecological design relies on renewable energy sources such as solar and wind.
   (a) (10 points) Contrast conventional and ecological design in terms of five other general design issues.
   (b) (2 points) Describe four structural elements that you might find in an ecologically designed house in eastern Nebraska.
Midterm Exam
Example Answers

1. (a) (1 point) What is the current population of the United States?
   (b) (2 points) The equivalent of how many Nebraskas are added each year to the U.S. population?

   (a) 272 million = US population
   (b) 2.66 million (annual US increase) + 1.66 million (Nebraska population) = 1.6 Nebraskas

2. Structure and function are closely related in landscapes. (a) (20 points) What are the structural characteristics of conventional suburbs that work against human interactions and the fostering of a sense of community? Remember that even within suburbs, structure can be analyzed at different spatial scales. (b) (5 points) Give three examples of city regulations that impede the development of community-friendly suburbs.

   (a) Positive interactions in shared common spaces are the glue that holds a community together. When people wall themselves off physically and mentally from their streets, and have no other local sites for interactions, then communities become simply a grouping of individual dwellings. Many of the structural elements of modern suburbs reinforce isolation.

   **Suburb-scale**

   The segregation of commercial, residential, recreational, and business enterprises in different areas force a dependence on the automobile and greatly reduce pedestrian use of streets. The lack of a corner store or dairy shop removes any focal point for community interaction. Restrictions on “granny apartments,” apartments above stores, and other lower-cost housing options reduces the diversity of people in an area and means that residential areas are fairly deserted during the work/school day, and business/commercial areas are deserted at night. Instead of many small parks, schools and churches integrated within neighborhoods, mega-churches, schools and recreational complexes service wide areas and require access by automobile.

   Gated communities segregate parts of the larger community from other parts. Liberal use of the bulldozer to eliminate trees, topographic variety, and other natural features reduces the aesthetic interest of an area and lessens the sense of place that makes people feel loyal to an area. One neighborhood looks and feels like another.

   **Street-scale**

   Wide streets with fast moving or dense traffic are major barriers to pedestrians. Combined with a lack of diversity in housing architecture, the result is a sterile environment with little of interest to encourage walking. Street-side attached garages present a blank, uninviting wall to
pedestrians, while allowing residents to drive directly into their homes with no chance of interaction with neighbors. Lack of sidewalks and bike paths contributes to auto use in lieu of walking. Dead-end cul-de-sacs force traffic onto major arterials and limit pedestrian routes.

Excessive covenants within a development strip owners of a sense of control and involvement in creating their community, and result in a lack of structural diversity and an aesthetically uninteresting street scene.

House-scale

The internal organization of individual houses can detract substantially from any communally-owned feeling for the street and other common areas. Lack of windows facing the street, lack of porches, walled back or front yards, and wide set-backs all isolate the house from the street.

(b) Examples include wide minimum street widths, large minimum set-backs for houses, minimum lot sizes, and single-use zoning.

3. A developer purchases several farms in an agricultural area at the edge of a city with the intention of converting the farms to acreage developments. He considers the average purchase price of $6000 per acre to be a good reflection of the value of the land.

(a) (2 points) Define the term “externality” in the context of land purchase and conversion.

An externality is a cost or benefit of a change in land use that is experienced by parties beyond the seller and buyer and is not reflected in the market price.

(b) (22 points) Describe the negative externalities associated with the conversion to low-density development of several farms in this urban-fringe agricultural area.

Public cost of infrastructure and services.

Reduction in the potential for local food production, food security, and the benefits of a local agricultural economy.

Fostering of an impermanence syndrome for farming in the area and an increase in the probability that other farmers will sell to developers.

Costs to neighboring farmers due to nuisance suits, traffic, and other negative interactions with new non-farming residents.

Costs to farmers from increased property taxes and prices for acquisition of additional land for farming or for entering farming.
Reduction in ecosystem services and public goods such as wildlife habitat, recreation/hunting, aesthetics, and perhaps hydrology/water quality.

Disruption of rural community and social structure.

(c) (6 points) Describe two methods that a government might use to ensure that the price of agricultural land for development more fully reflects the negative externalities associated with development.

Levy fees on developers to pay for infrastructure.

Impose capital gains or conveyance taxes on land sales with the proceeds earmarked for use in reducing negative externalities such as the purchase of conservation easements on remaining farmland. Where farmland has benefited from reduced property taxes as part of a greenbelt or other program, make the back-tax penalty for conversion to development significant enough to discourage speculation and to generate significant funding for PDR or other mitigating programs.

Require mitigation by developers for certain lost functions such as creation of replacement wetlands or donation of conservation easements on other farmland.

Strict enforcement of environmental regulations such as no soil loss from construction sites or protection of existing trees and natural features.

4. (25 points) As methods that a municipality could use to preserve farmland from development, what are the strengths and weaknesses of (a) purchase of development rights, (b) transfer of development rights, (c) exclusive agricultural zoning, (d) differential assessment for property tax purposes, and (e) area-based allocation or “cluster” zoning.

<table>
<thead>
<tr>
<th>Method</th>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
</table>
| PDR      | Permanently protects farmland  
Voluntary; landowner is paid for easement  
Landowner may receive estate and property tax benefits  
Government can target acquisitions  
Land remains in private ownership and on the tax rolls | Cost limits the amount of farmland that can be protected  
Government may be outbid by developers for key parcels, resulting in a fragmented agricultural landscape |
| TDR | Permanently protects farmland  
Landowner is paid for easement  
Landowner may receive estate and property tax benefits  
Government can target acquisitions  
Land remains in private ownership and on the tax rolls  
Low cost to government  
Uses market mechanisms | Can be complex to manage  
Tricky to achieve balance between sending and receiving areas  
Receiving area must be willing to accept higher densities  
Typically requires a strong real estate market for success |
|---|---|
| exclusive agricultural zoning | Government can target locations  
Contiguous blocks protected to ensure critical mass of farmland  
Low cost to government  
Reduces cost of public services by limiting sprawl  
Value of land for agriculture may increase due to “permanence syndrome” and reduction of nuisance problems  
Reduces speculative land price increases for development  
Land remains in private ownership and on the tax rolls | Public opposition to takings may be high  
Uneven burden -- landowners in ag zone may lose value while owners outside the zone get a windfall  
Subject to change as political winds shift  
Large zones will include pockets of land unsuited to agriculture  
Housing prices may increase due to restriction in developable land  
Requires diligent and competent administration |
| differential assessment | No acquisition costs  
Land remains in private ownership and on the tax rolls  
Farmers shielded from increased taxes due to higher land prices for development  
Government can target areas  
Landowner receives property tax benefits | Shifts property tax burden to non-agricultural lands  
Land is not permanently protected  
Tax savings and penalties for development often small compared to development profits  
Can subsidize speculation by reducing holding costs of developers |
| area-based allocation | Low cost to government  
Development not precluded  
Infrastructure costs reduced for each development  
Large portion of each parcel preserved as open space under permanent easement  
Development can be sited to avoid best farmland or environmental areas | Fragmentation of landscape  
Widely dispersed clusters present an overall low density that may have high public infrastructure costs  
Protected areas may be too small for viable farming |

5. (5 points) What is “friction of distance” and how does it relate to farmland conversion? Since WWII, has the “friction of distance” in the United States generally increased or decreased? Why?

Friction of distance refers to the increase in commuting or transportation time and effort associated with greater distance from a major population/employment center. In general, the further removed in travel time that an area is from a population center, the lower the development pressure. Construction of the interstate highway system and other road projects reduced travel
time to many outlying areas, in effect reducing the friction of distance even though the actual
distance did not change. More recently, technological advances supporting telecommuting have
almost eliminated the friction of distance for many workers, allowing them to live where they
please. A growing population of wealthy retirees can also decouple their choices of living sites
from consideration of proximity to cities.

6. Conventional and ecological design can be contrasted in terms of many different issues or
characteristics. For example, the operation of conventionally designed buildings usually relies on
non-renewable energy sources such as coal and nuclear, while ecological design relies on
renewable energy sources such as solar and wind.

(a) (10 points) Contrast conventional and ecological design in terms of five other general design
issues.

There are many possible answers to this question. Five examples are:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Conventional Design</th>
<th>Ecological Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration of ecological context</td>
<td>Very little; standard designs imposed everywhere</td>
<td>Considers site and cultural conditions</td>
</tr>
<tr>
<td>Design criteria</td>
<td>Economics, custom, and convenience</td>
<td>Human and ecosystem health, ecological economics</td>
</tr>
<tr>
<td>Materials used in construction</td>
<td>No consideration given to source or recyclability</td>
<td>Local materials used when possible; evaluated in terms of ultimate reuse or recycling</td>
</tr>
<tr>
<td>Role of nature</td>
<td>Large energy inputs used to impose human conditions on environment</td>
<td>Works with nature for processes such as wind for cooling and solar energy for heating</td>
</tr>
<tr>
<td>Sensitivity to local culture</td>
<td>Homogenizes the world; suburbs look the same from city to city</td>
<td>Reflects local culture and indigenous knowledge</td>
</tr>
</tbody>
</table>

(b) (2 points) Describe four structural elements that you might find in an ecologically designed
house in eastern Nebraska.

Some examples are south-facing windows and greenhouses for passive solar heating; straw bale
construction; limited window area on north side; landscaping with perennial warm-season
grasses; roof-fed cistern; wind-powered electrical generator; coniferous shelterbelt planted along
north side of property; placement of cool rooms (e.g., closets and storage areas) on north side of
house; overhangs designed to block summer sun but not winter sun.
Community quality is a concept related to the degree to which the physical environment provides opportunities for humans to fulfill their needs and desires (Smith et al. 1997) — i.e., the relationship between structure and function of the local landscape. People commonly label as ugly an environment that fails to meet their needs and desires. While they may not consciously evaluate their surroundings in terms of livability, connection or diversity, their aesthetic judgement often represents an assessment of the functional quality of the landscape.

This week features an aesthetic quality exercise in which the students are shown 40 slides of rural, suburban, and urban scenes selected to cover a wide range of built and rural environments. Each student rates each scene in terms of its visual appeal. The ratings are compiled while the project groups meet, and then the class reconvenes to discuss and interpret the results.

The purpose of the aesthetic quality exercise is to identify the types of landscapes that are most and least appealing to the class, and to identify the structural elements and arrangement of elements that contribute to aesthetic appeal or lack thereof.

Materials in this section:

Class exercise: Aesthetic qualities of built and natural environments
Selected results from aesthetic quality exercise
Aesthetic Qualities of Built and Natural Landscapes

Community quality is a concept related to the degree to which the physical environment provides opportunities for humans to fulfill their needs and desires (Smith et al. 1997) — i.e., the relationship between structure and function of the local landscape. Table 1 shows one approach to categorizing the primary needs that we hope are met by our community.

Table 2 lists the basic structural elements of a community. The extent to which a particular combination of these elements provides a sense of quality depends not only on the types and quality of elements that are present, but on their spatial arrangement. For example, garages located street-side present a sterile facade to pedestrians that reduces variety and interactions, while garages set behind the houses on alleys have almost no effect on the street scene.

A structural element can have contradictory effects on quality. For example, fenced back yards may increase privacy at the cost of community unity. Wide streets may increase auto-based mobility while reducing pedestrian mobility.

The retention or inclusion of natural features in the built environment has an important effect on community quality. E.O. Wilson speculates that humans have an innate need for contact with a wide variety of species, a trait that he labels biophilia (Sutton 1999). Certainly the market reflects this in the higher prices assigned to homes near green space or water, and in areas with mature trees.

People commonly label as ugly an environment that fails to meet their needs and desires. While they may not consciously evaluate their surroundings in terms of livability, connection or diversity, their aesthetic judgement often represents an assessment of the functional quality of the landscape. “...we can tell when a working landscape is properly designed. People show significant agreement in their evaluation of what makes a landscape look good, and often these are the same characteristics that promote necessary landscape functions. ...the aesthetic is a guide to right form and function” (Sutton 1999).

The purpose of the Aesthetic Rating Exercise is to identify the types of landscapes that are most and least appealing to the class, and to identify the structural elements and arrangement of elements that contribute to the aesthetic appeal or lack thereof. By recognizing these patterns, we should be better able to participate in the design of built environments that are aesthetically and functionally pleasing.
Table 1. Summary of needs and desires met by a quality community (Smith et al. 1997).

<table>
<thead>
<tr>
<th>Livability</th>
<th>Character</th>
<th>Connection</th>
<th>Mobility</th>
<th>Personal freedom</th>
<th>Diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td>survival</td>
<td>sense of place</td>
<td>fit</td>
<td>accessibility</td>
<td>control</td>
<td>variety</td>
</tr>
<tr>
<td>health</td>
<td>warmth</td>
<td>continuity</td>
<td>convenience</td>
<td>privacy</td>
<td>choice</td>
</tr>
<tr>
<td>personal</td>
<td>sense of time</td>
<td>unity</td>
<td>activity</td>
<td>affordability</td>
<td>interest</td>
</tr>
<tr>
<td>environmental</td>
<td>stability</td>
<td>symbolism</td>
<td>legibility</td>
<td></td>
<td>awareness</td>
</tr>
<tr>
<td>comfort</td>
<td>aesthetics</td>
<td>interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>security</td>
<td></td>
<td>belonging</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Physical form categories (Smith et al. 1997).

<table>
<thead>
<tr>
<th>Community</th>
<th>General structure and pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban block</td>
<td>General structure and pattern</td>
</tr>
<tr>
<td>Buildings</td>
<td>General</td>
</tr>
<tr>
<td>Streets</td>
<td>Civic, community, institutional</td>
</tr>
<tr>
<td></td>
<td>Commercial, industrial</td>
</tr>
<tr>
<td></td>
<td>Residential</td>
</tr>
<tr>
<td>Pedestrian ways</td>
<td>General</td>
</tr>
<tr>
<td></td>
<td>Parking: general</td>
</tr>
<tr>
<td></td>
<td>Byways</td>
</tr>
<tr>
<td></td>
<td>Main streets</td>
</tr>
<tr>
<td></td>
<td>Residential streets</td>
</tr>
<tr>
<td></td>
<td>Laneways</td>
</tr>
<tr>
<td>Open space</td>
<td>General</td>
</tr>
<tr>
<td></td>
<td>Primary areas</td>
</tr>
<tr>
<td></td>
<td>Secondary and tertiary areas</td>
</tr>
<tr>
<td></td>
<td>Semi-public and private areas</td>
</tr>
<tr>
<td>Vegetation</td>
<td>General</td>
</tr>
<tr>
<td>Feature areas</td>
<td>Natural resources</td>
</tr>
<tr>
<td></td>
<td>Views</td>
</tr>
</tbody>
</table>


Aesthetic Rating Exercise

The class will be shown a random sequence of 40 slides of a variety of urban, suburban, and rural scenes. Each slide will be presented for approximately five seconds. Each student rates their reaction to each scene on a scale of 1 to 5:

1 = very negative reaction; scene evokes very unpleasant feelings

3 = neutral reaction; no particular feeling good or bad

5 = very positive reaction; scene evokes very pleasant feelings

Please circle the number that corresponds to your reaction to each slide. Slides a-c are used for warm-up.

<table>
<thead>
<tr>
<th>Slide</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>b</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>c</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3</td>
<td>1 2 3 4 5</td>
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<td>4</td>
<td>1 2 3 4 5</td>
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<td>6</td>
<td>1 2 3 4 5</td>
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<td>1 2 3 4 5</td>
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<td>1 2 3 4 5</td>
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<td>1 2 3 4 5</td>
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<tr>
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<td>39</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>1</td>
</tr>
</tbody>
</table>
Selected Results and Evaluation of Aesthetic Rating Exercise

Black and white pictures of these eight slides are shown on the following pages. The quality of the original slides is obviously much higher.

<table>
<thead>
<tr>
<th>Slide</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Weighted average rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide 39</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>14</td>
<td>4.5</td>
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<tr>
<td>Slide 31</td>
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<td>0</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>4.2</td>
</tr>
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<td>Slide 40</td>
<td>6</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>2.1</td>
</tr>
<tr>
<td>Slide 26</td>
<td>14</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1.5</td>
</tr>
<tr>
<td>Slide 10</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>15</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Slide 18</td>
<td>17</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1.3</td>
</tr>
<tr>
<td>Slide 38</td>
<td>1</td>
<td>7</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>Slide 32</td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Comments on results:

Slide 39. Rural landscapes rated highest, particularly if shot from high enough to show a broad expanse with diversity of vegetation and landscape elements.

Slide 31. Some urban scenes also rated highly; scenes at a human scale, small buildings along narrow streets (closure) without cars.

Slide 40. The conventional new suburban development with wide streets, large set-backs, prominent garages, and no mature trees received low ratings.

Slide 26. Scenes of the suburban edge were rated lower than scenes of similar established suburban developments. Some students commented that they felt a greater sense of loss when viewing open space destined for development.

Slide 10. Higher ratings were given for older developments of smaller houses, front porches, narrower setbacks, garages not visible, and larger trees.

Slide 18. The traditional strip sprawl with signage received the lowest ratings.
Slide 38: This urban scene had the greatest diversity (spread) of ratings. The scene includes more intimate scale buildings in the foreground with some diversity of architecture and vegetation, while high rises and smog loom in the background. Different students seemed to focus on different parts of the picture.

Slide 32. Although scenes with water are generally rated high, this extreme channelized stream (drainage ditch) received a low rating. This argues for restoring streams and naturalizing stormwater retention basins.

The average ratings of the forty slides covered ranged from 1.3 to 4.5. Eleven slides had ratings in the range from 2.5 to 3.5, a result in some cases reflecting a lack of consensus and diversity of opinions. However, the majority of scenes showed a clear trend in rating by the group; for 33 slides, two adjacent ratings accounted for more than 2/3s of the votes for each slide.

General assessment of exercise:

Students participated enthusiastically and the discussion was insightful. This is a good teaching method for generating student involvement. It would be interesting to do the exercise at the beginning of the course, and then toward the end to see if the students' perceptions changed.
Week 11

The main theme is the relationship of laws to the structure and appearance of the landscape.

Zoning and other land use regulations are words on pieces of paper, but those words have important consequences for the structure and function of landscapes. Regulations sometimes translate into a different landscape than expected. It is difficult to visualize in advance the effects of a particular law.

The Department of Landscape Architecture at The Pennsylvania State University has developed a software package (PA BLUPRINTS) that allows the user to view the effects of different regulations on urban, suburban, and rural landscapes. The connection between laws and the landscape is nicely illustrated. We run the CD-ROM on a server so ten students can use the package simultaneously in the computer lab. An overview of PA BLUPRINTS (including how to order it) and the instructions for our computer exercise using this software are included in this section. This was one of the most popular exercises in the class -- students had to be told to stop so others could use it. PA BLUPRINTS was developed for use by communities in Pennsylvania, but it is broadly applicable, especially as a teaching tool.

When students are not in the computer lab, they meet with their project groups.

Readings from Under the Blade include case studies for southeastern Pennsylvania, the landscape within which PA BLUPRINTS was developed, and Florida.

Materials in this section:

PA Bluprints flier
Interactive computer exercise instructions
Two Penn State Department of Landscape Architecture faculty members have developed an important new tool to help communities plan their futures.

PA BLUPRINTS (Best Land Use Principles & Results, Interactively Shown) is a dynamic new multi-media CD-ROM created by a team of faculty and consultants under the leadership of Kelleann Foster, project director, and Timothy P. Johnson, technical director. It is designed to be used by taxpayers and professionals alike, including solicitors, developers, municipal engineers and those looking at economic impact issues.

Inspiration for the CD-ROM came from Foster's work with rural areas in Pennsylvania struggling to control growth that threatens to erode the positive characteristics of their communities. Foster notes that communities have choices they can make about their future, but often are not aware of them. "I knew that there are effective ways to make those choices a reality," she recalls, "but the challenge was to devise a way to illustrate many of them while also suggesting ways to make them happen in any Pennsylvania community.

"Just as blueprints for a building explain what goes where and how it will look, zoning regulations act as a blueprint for a community, telling us what can go where and what it will look like," Foster continues. "Communities need to be able to control their destinies, and PA BLUPRINTS is a tool that helps them do so."

PA BLUPRINTS contains a series of the best approaches to land use regulations supplemented by easy-to-understand illustrations, as well as pictures of actual examples of these in Pennsylvania. Everything contained in PA BLUPRINTS can be implemented now in any community in Pennsylvania with no state or federal prohibitions. Changes might be necessary within local zoning codes. Foster emphasizes, "These are practical, proven approaches that enable a community to retain cherished characteristics and direct growth in a desired manner."
According to Berks County Planning Commission planner Tina Kerr, who reviewed PA BLUPRINTS in the development stage, "We think it will be useful, especially when people can manipulate photos to see the long-term effects of their planning decisions."

The CD-ROM begins at a home screen that highlights topics related to agriculture, community character, natural systems, signs, streetscapes and trees/woods. A simple mouse click jumps to one of these areas to explore regulatory approaches and place illustrations. BLUPRINTS contains 66 sets of images, some of which have as many as 30 simulations each.

Another important feature of PA BLUPRINTS is the notes section accompanying the best land use principles and images. These notes address questions and concerns typically voiced by taxpayers, solicitors, developers, municipal engineers and those looking at economic impact. The notes also contain a reference section for further study.

"I'm looking forward to using PA BLUPRINTS," says Ken Joseph, a real estate attorney with the firm of Rose, Schmidt, Hasley & DiSalle, P.C. in Pittsburgh. "I expect that it will save me time and save my clients money by making the review of municipal ordinances and regulations easier."

The Center for Rural Pennsylvania, The Claneil Foundation and other Pennsylvania foundations provided support for the development of PA BLUPRINTS. Through their support and the College of Arts and Architecture's Department of Landscape Architecture, each county in Pennsylvania is receiving three CD-ROM copies of the PA BLUPRINTS. Counties will decide how best to serve their individual municipalities, and are being encouraged to make one CD available to the general public through institutions such as libraries. Information contained is in the public domain, and users are welcome to print out the text and images for reference and use.

To order a copy of the PA BLUPRINTS CD-ROM, send a check for $14 made out to Penn State to the Department of Landscape Architecture, The Pennsylvania State University, 210 Unit "D", University Park, PA 16802-1429. The cost covers the disk plus postage and handling. This version of PA BLUPRINTS is tailored to Pennsylvania's municipal code but can be of use to communities in other states as well. The CD-ROM runs on both Mac and Windows platforms.

Foster and Johnson are both associate professors of landscape architecture at the Penn State's University Park campus in State College, PA. Professor Foster may be reached at (814) 863-8133.
Pa. BLUPRINTS
Best Land Use Principles & Results, Interactively Shown
•• Now Available ••

BLUPRINTS is an educational multimedia presentation of innovative, yet practical, land use regulatory techniques. Everything shown can be applied in and is readily accessible to communities in Pennsylvania.

BLUPRINTS' goal is to enhance public awareness of, and understanding about, alternative regulatory options for guiding development and protecting natural and cultural resources in a community.

Exemplary land use regulatory principles cover six topics: Agricultural Preservation; Community Character; Natural Systems; Sign Control; Streetscapes; and Tree Preservation.

Each topic is supplemented by further information targeted towards different audiences: Solicitor's Notes; Citizen/Taxpayer Info.; Engineer's & Developer's Notes; Economic Impacts; and Resources.

BLUPRINTS also includes a collection of dynamic image simulations and graphics to clarify and illustrate regulatory concepts that are currently difficult to understand in typical text-based ordinances.

Supported by:
Richard King Mellon Foundation
Center for Rural Pennsylvania
Claneil Foundation

Produced by:
Landscape Architecture Department
Penn State University

To order a copy of the BLUPRINTS CD-ROM, send a check for $14 (to cover disk and postage/handling), made out to "Penn State University," to, Penn State Landscape Architecture Dept. 210 Eng. Unit "D", University Park, PA 16802-1429
Pa. BLUPRINTS Interactive Computer Exercise

Introduction

During the 24 March class, we evaluated the aesthetic appeal of a variety of rural, suburban, and urban scenes. Tonight's exercise expands on that analysis and ties it to the law chapter and some of the case studies in Under the Blade by considering the relationship of land use regulations to the look of various landscapes.

Pa. BLUPRINTS (Best Land Use Principles & Results Interactively Shown) is a software package developed by the Department of Landscape Architecture at The Pennsylvania State University. It allows the user to interactively explore, through image simulations and photos, the effect of various land use regulations on the structure and appearance of rural, suburban, and town environments.

The objectives of tonight's exercise are to:

• learn the differences among and contrast the effects of one-acre lot size zoning, fixed-area based zoning, sliding scale zoning, and TDR programs

• understand the effects of regulations regarding street width, front setbacks, street trees, and sidewalks on the character of suburban streets

• examine how building regulations can reduce the detrimental impact of new construction on the character of older business districts.

Instructions

To start the program, click on the BLUPRINTS icon.

Read the two introductory panels. The key point is that words on a piece of paper — a community's land use regulations — ultimately control or at least strongly influence how the community and its landscapes look and function. Words matter, and it is important to understand the effects on landscapes of different regulations.

Now click and move to the HOME page. Click on the rural portion of the community sketch, then under land use choices click on residential, then click on the barn and silo tab to reach rural residential: agricultural preservation. Scene 1 of 4 shows a landscape with a small town and surrounding agricultural lands. Follow scenario A to see the effects of one- to five-acre zoning on
development patterns during periods of three, seven, and twelve years. Compare scenario A with scenario B where agricultural areas are preserved through a TDR program.

The next step is to learn more about TDR and other approaches to land use regulation. Click on the button (forward/backward arrows) at the upper right hand corner of the landscape scene to go to scene 2 of 4.

At scene 2, read the descriptions of the regulatory approaches of one-acre lot size, fixed area based zoning, sliding scale zoning, and TDR. Through the simulations, note the different effect that each approach has on the rural landscape. Be sure to scroll through and read the text associated with each simulation.

Click the HOME button.

In class we have discussed some of the community regulations that influence the structure and function of suburban developments. The next exercise takes a closer look at some of these regulations. Click on the suburban portion of the community sketch, then under land use choices click on residential, then click on the road tab located to the upper right of the sketch to go to Suburban, Residential: Streetscapes.

Read the text describing some of the factors that a community can regulate to influence the character and quality of a residential street. Then simulate different combinations of street width, front setback, and amenities.

- What combination of requirements for these four factors do you think results in the best streetscape?

- Start with the baseline scenario of street width = 36', front setback = 75', street trees = none, and sidewalks = none. If you could change just one of the four factors to improve the look and livability of the community, which factor would you change?

The final exercise examines how regulations can affect the impact of new development within an existing town business district.

Click to return to HOME, then click on the town portion of the community sketch. Under land use choices, click on business, then in the Town: Business introduction, click on the tab with the icon of two small and one large buildings, which will take you to Town, Business: Community Character. Read the text describing how appropriate regulations can preserve the character of an older business district. Then look at each of the three simulations to see the effects of different sets of regulations.

This completes the formal exercise. We've only scratched the surface of what BLUPRINTS offers, so feel free to examine other parts of the program if you have any time left.

To exit BLUPRINTS, click on quit.
Week 12

A jig-saw exercise provides a warm-up for the class period. Although the topic is five “myths” concerning growth, the process is as important as the content. This exercise makes every student a teacher as well as a learner, and fosters interactions among students.

The main topic of the session is regional planning. Successful land use planning requires a regional land use approach. Interactions among different locations and communities make it difficult for one locale to effectively plan alone. It is difficult, however, to develop a consensus among a large and disparate group of stakeholders. The Bluffs Region charette was held in September 1998 to generate a common vision for the lower Platte River Corridor, an area of great natural beauty between Lincoln and Omaha that is under intense development pressure.

The Charette Coordinator, Diana Allen of the Lower Platte South Natural Resources District, provided a lecture overview of the planning process for the corridor, the main difficulties, and suggestions for effective consensus building. The table of contents and introduction from the final report of the charette is provided in this section.

The following Saturday, a class field trip toured the Lower Platte River Corridor and discussed the planning recommendations that came from the charette. The field trip also visited the Joslyn Castle Institute for Sustainable Communities in Omaha for an overview of current JCI projects.

Materials in this section:

Jig-saw exercise regarding growth
Newspaper article: Farmers yielding to sprawl
Report of the Lower Platte River Corridor charette
Joslyn Castle Institute for Sustainable Communities projects
Jigsaw Exercise Regarding Growth

The jigsaw method can be used to learn about several topics at once, mix a group of participants, and make everyone responsible for sharing information. Tonight, we will use the jigsaw method to evaluate five common beliefs regarding urban growth that Fodor (1999) has labelled myths.

The exercise begins with the class divided into five groups (A, B, C, D, E) of approximately five people per group. Each group takes fifteen minutes to learn about one myth (either 2, 3, 4, 6, or 9 from the list of twelve presented below. Each group reads and discusses a short excerpt from Better not Bigger as a means of educating themselves. The reading plus the group members' own knowledge are called upon in the discussion. Do you agree that the statement you are discussing is a myth? Why?

Then, the groups re-mix so that five new groups are formed, each containing one member from each of the original five groups. For example, the new group 1 will have one member from Group A, one from B, etc. Each new group now includes expertise on each of the five myths. Each person takes three to four minutes to teach the other members in the group about a particular myth. At the conclusion of the exercise, everyone in the class will have a better understanding of five concepts regarding urban growth.

Twelve Myths Regarding Growth

1. Growth provides needed tax revenues.
2. We have to grow to provide jobs to people in the community.
3. We must stimulate and subsidize business growth to have good jobs.
4. If we try to limit growth, housing prices will shoot up.
5. Environmental protection hurts the economy. We must be willing to sacrifice local environmental quality for jobs and economic prosperity.
6. Growth is inevitable. Growth management doesn't work and therefore we have no choice but to continue growing. You can't put a fence around our town.
7. If you don't like growth, you are a "NIMBY" (not in my back yard) or an "ANTI" (against everything).
8. Most people don't really support growth management or environmental protection.
9. We have to "grow or die." Growth makes the economy strong and creates better-paying jobs.
10. Vacant or undeveloped land is just going to waste.
11. A person's visual preference is no basis for objecting to development.
12. Environmentalists are just another special interest. There is no such thing as the public interest.

Farmers Yielding to Sprawl

BY DAVID HENDEE
WORLD HERALD STAFF WRITER

In the Elkhorn River uplands on northwest Omaha's horizon, Larry and Kathleen Peterson's patio offers a vast, open vista of fall fields, shattered cornstalks and distant farmlands sheltered by trees.

But the tranquil hilltop view is deceptive. Back by the grain bins behind the house, the Petersons look southeast over suburban Omaha development, less than a mile away, sprawling in their direction.

For farmers like the Petersons who operate on Omaha's urban-rural fringe, their fate is sealed. Concrete will be the last crop. The question is when.

"If you're a farmer in Douglas, Sarpy or Washington County, you know it's coming," said the 55-year-old Peterson. "It's inevitable."

That's especially true in the Petersons' neighborhood on the suburban frontier between Bennington and Elkhorn. Planners and developers say the bulk of the metropolitan area's growth during the next decade will take place in that farmland-dominated northwest corridor of Douglas County.

Projects now under way or planned during the next five to 10 years could replace fields of corn and soybeans with 2,000 to 3,000 new houses and all of the streets, shops, restaurants, theaters, golf courses and parks that go with them.

Such changes are happening across Nebraska and Iowa, as irreplaceable farm fields are paved over in the name of progress. From coast to coast, agricultural land is disappearing at a rate of more than 1 million acres a year, according to the American Farmland Trust, a conservation group based in Washington, D.C. That's the equivalent of more than half the wheat fields harvested by Nebraska farmers.

Farmland, wetlands and woodlands on the urban edge are being see

Life on the Edges

Across Nebraska, an estimated 200 square miles of farmland has been converted to development since 1982.

In Iowa, at least 40 square miles of prime agricultural land has been lost annually in recent years, much of it in scattered parcels of acreages.

In metropolitan Omaha, development is gobbling farmland at a rate of 3,350 football fields a year.

Around Lincoln, the farmland equivalent of more than 615 football fields vanishes each year.

Sources: Officials at the U.S. Agricultural Department, University of Nebraska-Lincoln and Iowa State University.
There is no agreement on whether the trend is good or bad, inevitable or preventable.

Continued from Page 1

FARMLAND
Corn Growers Are Yielding To City Sprawl

There is no agreement on whether the trend is good or bad, inevitable or preventable. For farmers in the right spot at the right time, selling the farm can mean a big payday. Some people say it takes another bite out of America's ability to feed itself and the world.

Richard Olson, a researcher at the University of Nebraska-Lincoln's Center for Sustainable Agricultural Systems, said there are many reasons, led by market factors, why it is difficult to be a farmer on the urban edge.

"But if urban planners decide they want a landscape in the future that includes farmland nearby, they need to guarantee it now by passing zoning regulations and purchasing development rights.

Marty Shuker, the former Omaha city planner who helped Douglas County draft its 59-page comprehensive development plan this year, said the conversion of land from agricultural to residential is the top land-use policy question facing rural areas of the county.

Steven Jensen, assistant planning director in Omaha, said the city's policy is to prolong farming on prime agricultural land as long as possible by requiring new building to be contiguous with existing development. It is the city's policy, however, that all agricultural land in the urban growth zone will someday be developed — parcel by parcel and farm by farm.

"Few communities plan to preserve agriculture or to direct development away from the best farmland," Olson said. "But preserving open space isn't the same as preserving agriculture," he said. "If we're not preserving agriculture and the ag economy, all we have is a land bank for future development."

Selling out is not a simple issue for farmers on the edge of development. Olson said. They consider the new economies of their operation in the face of lucrative offers. They consider how close they are to retirement. They consider whether it's worth it to put money into terraces, buildings and other improvements to property that is simply in a holding pattern for development.

They consider the hassles of dealing with suburbanites who complain about pesticide drift, odors, noise and slow-moving equipment on roads — not to mention the vandalism and unleashed dogs that arrive with the newcomers.

"All these things can add up to make a farmer say it's just not worth it anymore," Olson said.

"If you own the land and are able to sell it, well, that's retirement for some folks," he said. "It's for us at our age. But if you rent the land and it's taken up by development, you have to move farther out or you can't keep farming."

For many farmers, suburban development offers a chance for the first time in their lives to have a new house or to secure their family's financial future.

Land outside Douglas County generally sells for $1,700 to $2,200 an acre as farmland. But a farm in the path of Omaha's suburban push into the hot Elkhorn uplands can fetch anywhere from $5,000 to $30,000 an acre. The price largely depends on the land's proximity to existing streets and to water, sewer and electrical lines.

"Nobody's buying land around here with the vision that they're going to farm it forever," Peterson said. "They buy for its potential."

"Likewise in Lincoln's Lancaster County, where only on the fringes is there a market for land for farming, said Bruce Johnson, a UNL agricultural economist. As in Douglas County, most land values around the state's capital city are driven by demand for acreage and the prospect of future development, he said.

Olson calls the "impermanence syndrome" and says it isn't limited to metropolitan counties. Some farmers southeast of Lincoln in neighboring Sarpy County have argued against allowing big hog-confinement farms not so much because of environmental concerns, he said, but because the operations could reduce the development potential of their farms.

"They see development and big hogs and figure farming is going out," he said. "And so it becomes a self-fulfilling prophecy."

Douglas County's vision of the future for the slice of the county still in its planning jurisdiction generally calls for conserving prime agricultural land between the Elkhorn River bluffs and the Platte River at the western edge of the county. Land around Bennington and Elkhorn is expected to be developed, but in a way to preserve its rural nature.

The action of selling a farm to developers may be harder to swallow, Peterson said, but few farmers will let sentiment stand in the way of a good deal.

"No matter how much work you've put into the land, no matter how much you've done, no matter how many years you've been at it — with the prices some developers will pay, you'd be foolish not to sell," Peterson said.

"When they see $20,000 an acre at you, boom, it's gone. "You worked it, terraced it and took care of it. You hate to see it go into a subdivision because you know that good stewardship is not going to happen again to that land. But it's still just a piece of land."

Few farmers touch the money they get when they sell their farms. They reinvest it in like-kind property as a way to defer taxes. That's what Tom and Sandra Thomsen did.

The Thomsons are spending their last winter on the 160-acre farm on which Tom grew up northwest of 16th Street and West Maple Road. They'll move in the spring to an 800-acre farm they pieced together with their windfall. It's just 11 miles north in Washington County.

"Every year, our family was losing rented farmland to development, and now it's time to move on," Tom Thomsen said. "You can't stand in the way of progress. We get a good price. I'm not bitter."

Thomson, who works with his brother John, of Elkhorn, once farmed land at 156th and Blondo Streets. Houses and a convenience store now cover that land. Other land he farms along 16th and 204th Streets is under development pressure. The Elk Creek Crossing subdivision on the northeast corner of 168th and West Maple sits on land he farmed.

Thomson likes to say he can grow something that nobody else can — houses.

Thomson's grandfather bought the farm at 16th and West Maple in 1929, just before the hard times of the Great Depression. Thirty years ago, Thomson said, his grandfather watched Omaha's westward growth and said, "It's got to stop. It's got to stop."

Like his neighbors, Dale Logemann knew the day was coming when he would have to decide when to sell the farm that had been in his family for more than 130 years. But when it arrived, he wasn't ready.

"It wasn't for sale when the offer came," he said. "Omaha got here 15 years sooner than we thought it would. We kept saying no, no, no. It took us nine months to sort it out."

Logemann sold his family's 250-acre farm near 156th and Ida Streets in March to a developer who is building what will be the Stone Creek golf course and housing development. He says half-jokingly that he made enough money on the sale to continue farming.

He left behind the deteriorating barn built by his great-grandfather in 1886 for the developer to remove.

"I didn't have the heart to tear it down," he said.

He saved, however, the 69-year-old farmhouse that his grandfather built, moving it to land he owns in Washington County.

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Logemann, who works with his brother, Ray, and son, Marc, said the decision to sell was made in part to give his son and nephews a future in farming. He’ll be moving 60 miles to a farm he bought near Bancroft in northcentral Nebraska.

“If they’re going to have a chance to farm, it isn’t around here,” Dale Logemann said. “Somebody had to move. I’m looking at the next generation. That’s what my father and grandfathers did. That’s why they call it a family farm.”

Booming development is changing the face of the countryside in other ways, too. Nearly all farm businesses in Bennington and Elkhorn — feed, seed and fuel dealers and blacksmith shops — have disappeared in the last 10 years as houses replaced farms.

The Bank of Bennington’s assets have doubled in the last six years as the farmers’ share of business shrank to 4 percent from 30 percent, said President Leslie Andersen.

Loren Cohrs, owner of Knudsen Oil & Feed in the village of Washington, across the county line in Washington County, has fewer farmers as customers, but more city folks on acreages who need feed for their horses and pets and propane to heat their houses.

The changes even reach into churches. Zion Lutheran Church, a 112-year-old Missouri Synod Lutheran congregation at 142nd and Ida Streets, has seen its membership swell with suburban newcomers, said the Rev. Thomas Schmitt. A decade ago, the congregation was almost totally rural. Today, suburban families make up all but about five of the 200 families. Sunday worship attendance has doubled in two years.

“The question each Sunday is not if we’ll have visitors, but how many,” Schmitt said.

A fund-raising campaign is under way to expand the church and to perhaps provide preschool and day-care services. An elementary school has been discussed.

Peterson, who knows that someday a developer will come knocking at his door, said the loss of corn and soybean farms in the Omaha area won’t hurt the nation’s ability to produce food, a concern of the American Farmland Trust, the Sierra Club and other organizations.

“The young farmers today are doing a much better job at producing bushels per acre than we did,” he said. “I’m not worried about my grandchildren having enough to eat. They say we’re taking the good land away, but the truth is they haven’t got the good land yet.”

York County and other places across Nebraska with better combinations of irrigation and geography more than make up for the loss, Peterson said.

But the sale of farmland in Douglas County and other U.S. metropolitan areas ripple across the countryside in another way. Land prices and valuations outside metropolitan areas are being driven up somewhat by farmers who sell high for urban development and then reinvest in farmland elsewhere, outbidding local farmers, said Johnson, the UNL agricultural economist.

In Nebraska, the price pressure also comes from growing midsize cities, like Beatrice, Fremont and Norfolk and along Interstate 80 and the Platte River, said Rob Robertson of the Nebraska Farm Bureau.

Dean Glock, chief real estate officer for Farmers National Co., a farm and ranch management company based in Omaha, said the positive side to the inflationary pressure is that it is keeping land values relatively stable at a time when the agricultural economy is sagging.

A bigger national problem than losing farmland to subdivisions, said UNL’s Olson, are the 5-, 10- and 20-acre acreages that are popping up across the countryside.

“They take a lot of land out of production for very few new houses,” he said, “and that’s less efficient use of the land.”

Lincoln and Lancaster County, for example, appear headed to a future as a big city surrounded by acreages. Olson said. So much Lancaster County farmland is already tied up that acreage development is moving south into the northern edge of Gage County.

“People are sprawling out in big houses on big parcels of land,” Olson said.

Glock said that trend is hot across the Midwest from Columbus, Ohio, to Lincoln and beyond. Across the Missouri River from Omaha, permits for houses on acreages are up more than 22 percent this year over the previous year, said Kay Mocha, the county’s planning and development director.

Iowa State Rep. Ed Fallon of Des Moines, who pushed this year for a study of urban sprawl, said several bills probably will be introduced in the next session of the Iowa Legislature to slow the pace of paving over farmland.

“It’s clear now,” Fallon said. “That while there are common themes statewide there won’t be a one-size-fits-all solution.”

Demand is so strong for acreages in Omaha’s southern suburbs that five-acre sites are commanding $50,000 with no water or sewer hookups, said Ken Tex, the planning and zoning director in Sarpy County. The county’s fast-growing subdivision developments along Harrison Street between 156th and 160th Streets and at 168th Street and Cornhusker Road were cropland as recently as five years ago, Tex said.

Peterson has lived on the edge before. His father’s farm was in what is now Maple Village near 102nd and Maple Streets in northwest Omaha, then the city’s largest subdivision. The farmhouse stood where the Brass Knocker Lounge now stands.

“We came out 10 miles and, after a few years, people said we’d only be here 25 years,” Peterson said. “Well, we’ve been here 35 years. I’m not complaining. I don’t think growth is bad. I don’t know where all these people are coming from, but if they keep coming we’ll be out of here sooner than later.”

A Topic for the Classroom

Lincoln — The University of Nebraska-Lincoln is offering a new class next semester looking at the patterns, causes and consequences of converting farmland to housing, roads and other development.

The three-credit-hour class is called Urbanization of Rural Landscapes. It will be held Wednesdays from 6 p.m. to 8:50 p.m. at Koin Hall on UNL’s East Campus, beginning Jan. 13 and ending April 28.

Students will work in small groups, with computers, planners and government officials from Lincoln and other communities, and with faculty members from several departments. Two Saturday field trips will look at the urban-rural edges of Lincoln and Omaha.

Richard Olson, of the Center for Sustainable Agricultural Systems at UNL, will be the main instructor. He is co-editor of a book, “Under the Blade: The Conversion of Agricultural Landscapes,” to be published next month by Westview Press in Boulder, Colo.

Other instructors will include agricultural economist Bruce Johnson, community and regional planning professor Kip Huvelsborn, weed scientist Dave Mortensen and College of Architecture Dean Cecil Steward.

262
The Bluffs Region charette was held September 1998 to develop a vision and plan for the future of the Lower Platte River Corridor. Following is the table of contents and the introduction from the final report of the charette.

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### Vision

**The Bluffs: Heritage, Lifeblood, Legacy**

**Opportunities:**

**Challenges:**

**Environment**

- **Setting**
  - Evolution of the Landscape
  - Existing Physical Context
  - Forests
  - Floodplain
  - Farmland
  - View Corridors and Vistas
  - Concepts and Implementation
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic View Preservation</td>
<td>14</td>
</tr>
<tr>
<td>Ridgeline Preservation</td>
<td>14</td>
</tr>
<tr>
<td>Forest Preservation</td>
<td>15</td>
</tr>
<tr>
<td>Prairie Preservation</td>
<td>16</td>
</tr>
<tr>
<td>Floodplain Management</td>
<td>16</td>
</tr>
<tr>
<td>Creek Buffers</td>
<td>17</td>
</tr>
<tr>
<td>Building Design Standards</td>
<td>17</td>
</tr>
<tr>
<td>Land Use</td>
<td>18</td>
</tr>
<tr>
<td>Setting</td>
<td>18</td>
</tr>
<tr>
<td>Recreation and Tourism</td>
<td>18</td>
</tr>
<tr>
<td>Agriculture</td>
<td>18</td>
</tr>
<tr>
<td>Communities and Housing</td>
<td>19</td>
</tr>
<tr>
<td>Public Services</td>
<td>20</td>
</tr>
<tr>
<td>Concepts and Implementation</td>
<td>21</td>
</tr>
<tr>
<td>Preserving Rural Character</td>
<td>22</td>
</tr>
<tr>
<td>Containing Residential Sprawl</td>
<td>22</td>
</tr>
<tr>
<td>Conventional vs. Cluster Subdivisions</td>
<td>24</td>
</tr>
<tr>
<td>Focusing Development</td>
<td>26</td>
</tr>
<tr>
<td>Preserving Views</td>
<td>28</td>
</tr>
<tr>
<td>Making Public Investments</td>
<td>29</td>
</tr>
<tr>
<td>Implementation Strategies</td>
<td>30</td>
</tr>
<tr>
<td>Best Management Practices for Construction</td>
<td>33</td>
</tr>
<tr>
<td>Transportation</td>
<td>34</td>
</tr>
<tr>
<td>Roadway Capacity</td>
<td>34</td>
</tr>
<tr>
<td>Functional Classification</td>
<td>36</td>
</tr>
<tr>
<td>Concepts</td>
<td>38</td>
</tr>
<tr>
<td>Roadway Improvements</td>
<td>38</td>
</tr>
<tr>
<td>Multi-Modal Circulator</td>
<td>39</td>
</tr>
<tr>
<td>Trails Concept</td>
<td>40</td>
</tr>
</tbody>
</table>
Lower Platte River Corridor - The Bluffs Region
Lower Platte River Corridor
Bluffs Region Charette - September 1998

Diana Allen, AICP, Charette Coordinator
Lower Platte River Corridor Alliance

Connie Cooper, AICP, Charette Facilitator
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Dept. of Architecture, UNL
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Kip Hulvershorn, Community & Regional Planning, UN-L

Lower Platte River Corridor - The Bluffs Region
<table>
<thead>
<tr>
<th>Charette Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cass County</strong></td>
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<tr>
<td>Raymond Althouse, Cass Co Ping Comm.</td>
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<td>Chris Anderson, Ashland, City Admin.</td>
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<td>Julie Anderson, Omaha World Herald</td>
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<td>Ted Bailey, LPNNRD Director</td>
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<td>Ann Birch, Bellevue, Planning Director</td>
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<td>John Brophy, LP5NRD</td>
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<td>Ben Brooks, South Bend</td>
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<td>Tim Burke, Ashland Chamber of Commerce</td>
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<td>Steve Clark, Saunders Co Supervisor</td>
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**Special Thanks**

**SAC Museum**

Lee G. Simmons Wildlife Safari Park

Round the Bend Restaurant

**Eugene T. Mahoney State Park**

Quarry Oaks Golf Course

Linoma Beach Restaurant
Vision

The Bluffs region of the Lower Platte River Corridor will become Nebraska's foremost attraction by focusing on the unique natural resources of the Platte River, and striking a balance between economic expansion and the preservation of rural character.

- Provide a mix of housing and shopping opportunities in the existing towns.
- Preserve and enhance the historic character of Ashland, Louisville & South Bend.
- Maintain the corridor's scenic beauty.
- Develop nationally recognized recreation, cultural and educational attractions.
- Improve visual and physical access to the Platte River.
The Bluffs: Heritage, Lifeblood, Legacy

The Bluffs region of the Lower Platte River is a ten-mile corridor extending from Ashland, Nebraska near U.S. Highway 6 to Louisville, Nebraska at Nebraska Highway 50. The Bluffs region of the Lower Platte River Corridor is a unique region that offers tremendous opportunities to contribute to the quality of life for all Nebraskans. To the extent that community-minded people come together to recognize the value and potential of this special place, Nebraskans can expect to enjoy a better quality of life that endures for future generations.

This river represents our heritage, our lifeblood, and our legacy. It has been said the Platte River is a mile wide and an inch deep; however the river and its corridor extend far deeper and wider in the hearts, the minds, and the very livelihood of Nebraskans. Today, over fifty percent of the state’s population depends upon the quality and quantity of surface and groundwater systems offered by the Platte River valley. In many respects, who and what we are today is dependent upon the river.

Westward migration and settlement patterns across the state of Nebraska followed the Platte River valley, which provided a navigation route and a source of sustenance to travelers. During this early settlement period, transportation routes across the plains were aligned along this great river road. As transportation brought commerce, and commerce grew settlements, Nebraska’s governance structures adjusted jurisdictional boundaries, institutions and the site of the state Capital to reflect emerging political and economic pressures. In those early days, the Platte River was a symbolic and physical divide in the pattern of settlement.

In recent years, the Lower Platte River area between Ashland and Louisville has become of focus of the region’s attention. Each of the three county jurisdictions contains prime farmlands and other important agriculture-related uses. Each is experiencing the pressures of urbanization as Lincoln and Omaha have begun to grow east and west, respectively, toward the Platte River. Small towns in the path of this outward pattern of development have experienced strong growth. The natural environment of the Platte River has drawn recreation uses, including seasonal riverside housing around sandpit lakes in the floodplain.
Problems with past flooding, expected population growth, drinking water supplies, as well as agricultural and recreational resources in this region make decisions along this corridor especially important. In order to comprehensively address these concerns it will take a tremendous effort on the part of state and federal agencies, Natural Resources Districts, and local governing bodies.

**Communities in the area include:**
- South Bend
- Louisville
- Ashland
- Cass County
- Sarpy County
- Saunders County

**Major features and attractions in this region include:**
- SAC Museum
- Schramm State Park
- Army National Guard Camp
- Lee G. Simmons Wildlife Safari Park
- Eugene T. Mahoney State Park
- 4-H Youth Camp
- City of Lincoln Wellfields
- Quarry Oaks Golf Course
- Platte River State Park
- YMCA, Camp Kitaki
- Camp Carol Joy Holling
- Interstate 80, Nebraska Highways 6, 66, 31, and 50
- Fiber optics lines
- Two Burlington Northern Rail Lines

**Interview comments include:**
- Prevent loss of agricultural land
- Put recreation & conservation into an enforceable zoning map
- Create something better than Branson, Missouri
- Prevent development in floodplains
- Ashland could supply area with water
- Too much money being paid out on flood damaged structures
- Rumors about Six Flags and a regional airport
- The corridor has historic registry potential
- Like seasonal tourism
- Quarry Oaks and Zoo have a great view of the Platte River
- Recreation & airboats creating erosion from wakes & ramps
- Hunters abandoning pallets and carpets at river duck blinds
- No consensus - location of comm. business in relation to highway
- Locals are supportive as well as skeptical about trail system
- Neon signs would blow the illusion of being on the prairie
- Ashland is becoming a crossroads community
- South Bend needs to become 'visible'
- Louisville needs mainstreet redevelopment
- Commercial tax base needed
- Free market will dictate development potential
- Corridor not prepared for development pressure
Opportunities:

Opportunities within the Bluffs Region of the Lower Platte River Corridor for tourism and recreation, transportation, environmental and floodplains, utilities and community services, and land use were identified:

- Diversity of attractions
- Greater river access
- Tourism to pay for itself
- Multi-use, multi-modal transportation system
- Mobility with amenities
- Access management
- Preservation of open spaces
- Habitat for wildlife
- Protection of industrial materials (sand & gravel)
- Sustainable development to protect environment
- [Protect] water quality and quantity
- Rural water system
- Improved communication
- Commercial, residential, agricultural, parkland, open space

Challenges:

Challenges within the Bluffs Region of the Lower Platte River Corridor for tourism and recreation, transportation, environmental and floodplains, utilities and community services, and land use were identified:

- Political turf battles
- Competing uses, lack of compatibility
- Loss of natural terrain, trees, habitat
- Infrastructure costs
- Floodplain buy-outs
- Flood control
- Protection of bluffs
- Zoning regulations
- Retention of rural character
- Wellhead protection program
- Wastewater containment
- Septic systems
- Lack of information and ability to be innovative
- "We've always done it this way."
Preparing for the Future while Preserving the Past

The arrival of the Institute for Sustainable Communities on the grounds of the Joslyn estate represents the culmination of broad-based community input on how to save the Castle and find a meaningful purpose for its use. The challenge of maintaining the historic and cultural value of the Castle while also complying with the stipulation that the Castle be used for educational purposes sparked years of discussion among interested community members.

It was agreed by those concerned that the best way to meet these objectives was offered by W. Cecil Steward, Dean of the College of Architecture-UNL. Dean Steward proposed that an organization committed to the issues of community and sustainability guide the Castle into its next phase.

The Institute, through its education, research and outreach programs, focuses on the built environment to promote sustainable development. It seeks to improve the capacity of communities to address issues of environmental concern in harmony with economic and social development. Given that natural resources are the basis of a strong economy, the Institute aims to provide for the needs of present generations without compromising the ability of future generations to meet their own needs.

The Board of Directors includes high level architectural professionals from the offices of Skidmore, Owings and Merrill (SOM), Henningson, Durham and Richardson (HDR), and Leo A. Daly, and the publisher of the quarterly Design Intelligence with advanced strategies for design professionals. The University of Nebraska is represented by faculty from the College of Architecture in Lincoln and the College of Public Affairs and Community Service (CPACS) in Omaha. The organizations located at the estate with membership on the board are Landmarks, Inc. and the Nebraska Arts Council. In addition, Friends of Joslyn Castle and the Joslyn Art Museum are represented. Dean Steward is the President of the Board.

For more information:

Catherine McGuire
Joslyn Castle Institute for Sustainable Communities
3902 Davenport Street, Omaha, NE 68131
402-595-1902
cmcguire@unlinfo.unl.edu
**UN Best Practices and Local Leadership Program (BLP)**

The United Nations Center for Human Settlements (UNCHS) best practices program consists of an awards program and database. The awards recognize and create awareness of outstanding and sustainable achievements. The database makes information on best practices available via internet or CD Rom to an international audience.

JCI is a member of the Best Practices and Local Leadership program (BLP). One of 18 partners worldwide, the Institute with the College of Architecture at the University of Nebraska-Lincoln (UNL), is the designated Thematic Center of Architecture and Urban Design. The institute helps to evaluate submissions for the awards program and develop the database by encouraging submissions that highlight the benefits of sustainable design.

**Green Building/ Eco Park Initiative**

Omaha was selected as the site for an inner-city community-based development project, one of 10 nationwide funded by an EPA Sustainable Development Challenge Grant. This $75,000 grant funded a year-long planning process, including the identification of the project location with existing building and outdoor space to be redeveloped according to sustainable design principles. The management, consisting of Nebraska State Recycling Association, the Inner-city Coalition on the Environment and JCI, formed an advisory board made up of professionals and local representatives to engage the community in the design and planning process. JCI coordinated the Building Design and Landscape committees. A technical report will guide the project through the design development, construction and ongoing operations of the building. The report, combined with an interpretive display, will help transfer knowledge and experience to others.

**Nebraska Network 21 (NN21)**

**Sustainable Communities Action Team**

The purpose of NN21 is to bring together education and communities to find creative ways to meet the learning needs of Nebraskans in the year 2020. Funded by the W. Kellogg Foundation, the network began with a statewide visioning process. A number of action teams and demonstration projects emerged from the visioning with a focus on education, community development, and food systems. JCI plays a leadership role in the Action Team for Sustainable Communities. The team seeks to create greater awareness of sustainable community issues by focusing on food systems. Working in four communities, the team will take an inventory of food produced, processed, and consumed in the community as well as food that was historically produced in the region, new crops that could be cultivated, and jobs associated with food systems in production, delivery and waste management. These activities are being conducted with the help of teachers and students participating in the School at the Center program.

**Sustainable Communities on the High Plains**

This self-paced learning package on CD ROM uses the cultural and physical history of approximately 15 actual or previously existing Nebraska communities as case studies in the challenges of sustainability. It was developed by JCI in partnership with the College of Architecture-UNL and the Nebraska Educational Television Consortium for Higher Education (NETCHE).

**State Agency Sustainable Energy Planning**

JCI will consult with all state "code" agencies in Nebraska to implement the Governor's recent Executive Order requiring each agency to assess and plan for improvements and efficiencies in its patterns of energy consumption and the use of alternative energy sources,
especially in buildings and for transportation systems. The variety of assessments of buildings, functions, technologies, settings, and geographical contexts which this project affords will be invaluable to the modeling of energy issues.

**Mutual Self-Help Housing, Nebraska City**

In this USDA-operated program, 22 families are constructing their own homes in what promises to be a model project for sustainable community development. An innovative wall system is being used that simplifies construction and provides excellent insulation. These houses will be energy efficient, resulting in lower costs to the owners for heating and cooling. The families are learning new skills at the same time they are gaining equity in their new homes. The construction cost of each home is approximately $55,000, but the value of the finished home is much higher.

JCI activities include the evaluation of typical house plans, providing an introduction to green building and sustainable landscape principles, designing the training program for the families and guidelines to assist others in similar housing development projects.

**Projects and Visions for Omaha**

This three-part conference series focuses on urban growth and the development of the metropolitan area. The objective is to: 1) develop a picture of Omaha in the future by looking at major architectural projects that have been announced and 2) identify issues relevant to the development of this community. Topics to be addressed include the history of Omaha's development, demographic trends, the impact of information technology, major development projects in the city, and long-term community goal-setting.

The second conference will be held in conjunction with President's Council on Sustainable Development National Town Meeting, May 1999.
Week 13

The main activity this week is a capstone exercise that requires the students to apply much of the knowledge gained to date to a real world problem. In this case, the problem is the expansion of the city of Lincoln into the Stevens Creek Watershed, which forms the city’s eastern border. Development of the currently agricultural watershed will occur, so how might it best be developed?

Working in small groups, the students first prepare a vision statement describing an ideal future Stevens Creek watershed. How would they like it to look? Then each group translates their vision into a map. The USGS topographic map for the Walton Quadrangle is the base map on which future land use patterns are drawn. City and county maps of current roads and development, floodplains, and zoning are available as references.

The vision statements and maps are then hung on the walls of the classroom, and in a “gallery walk,” the students circulate and comment on each group’s landscape design.

Final readings from Under the Blade lay out a vision and suggestions for a national land use policy, strategies for preserving community agriculture, and a vision from Norway of a different way of using land.

Materials in this section:

Visioning exercise description
Urbanization of Rural Landscapes
14 April 1999

Visioning Exercise
Stevens Creek Watershed

Stevens Creek watershed, which forms the eastern border of the city of Lincoln, is the subject of intense debate regarding the extension of city services into this largely agricultural area and the resulting transformation into an urban landscape. The proliferation of acreages within the watershed combined with sharply rising land prices as the result of speculative investment is already beginning to transform this area while promoting an impermanence syndrome based on the perception that change is inevitable.

The type of change is still open to debate. From their testimony before the city council and county commissioners, it is clear that the Lincoln Homebuilders Association and other developers have no cohesive vision of the future of the Stevens Creek watershed. They simply promote a free-for-all based on the development of individual parcels subsidized by massive taxpayer spending for infrastructure. Given this lack of originality and foresight, the result would no doubt be similar to what is happening now in south Lincoln or along North 27th Street.

The purpose of this class exercise is to apply the knowledge gained in the course to developing alternative visions for the future of the Stevens Creek watershed. This is a much abbreviated version of a charrette or community planning exercise, but the basic process and goals are the same — to map out a vision of an optimal future as a first step in achieving that future.

Introduction: A quick overview of the watershed will be provided at the start of the exercise. Other resource materials available to the class include county land-use maps, floodplain maps, topographic maps, and soil surveys.

The class will divide into four groups, each of which will develop a separate vision.

Vision statement: Each group will write a concise, one-sentence description of their preferred future condition of the landscape in the Stevens Creek watershed.

Assumptions: City services will be extended to at least the western portion of the watershed, and the entire watershed will have a much higher population density and intensity of use in close conjunction with or as an actual part of the city of Lincoln.

The one-sentence description of an optimal future state for the Stevens Creek watershed (given the constraints described above) is followed by a list of perhaps six descriptive phrases or sentences describing structural or functional components that contribute to the attainment of the vision statement.

The complete vision statement is written on flip-chart paper and posted on the wall for discussion during the break.
Mapping: Each group then prepares a map of Stevens Creek watershed illustrating the spatial pattern of different land uses that would reflect the achievement of their vision for the watershed. The base map for this exercise is the USGS topographic map for the Walton quadrangle. Land uses should be color-coded, and a key describing each landuse prepared.

The descriptions of the different land use types shown on the map should include the type of zoning or regulations that would result in that type of land use. This link between zoning and the structure of the landscape was illustrated in the PA BLUPRINTS exercise conducted in an earlier class.

Factors to consider in the mapping exercise include topography and floodplains, soil quality, proximity to existing urban areas, and existing development in the watershed where known. Students cannot consider in this short exercise current land ownership and desires of the land owners — factors that would obviously be critical in any actual planning exercise for this area.

Discussion: Each group’s results, consisting of vision statement, map, and land use key, are posted on the wall, and the entire class engages in a discussion through a gallery walk. Each group should have at least one member by their display at any time to answer questions.
Lincoln needs a plan for transforming farmland west of Stevens Creek into a mix of homes, acres, parks and businesses — and the sooner the better, city and county officials agreed Friday.

"Now is the time to let people know we are moving into Stevens Creek," Councilwoman Linda Wilson said.

The area is being threatened by developers, said Councilwoman Colleen Seng. "We need to get a plan started so we do it the right way," she said. "If we don't do it, these developers will come in there and ruin it."

Meeting as the city-county Common, the County Board and City Council discussed ways to finance a Stevens Creek development plan.

They also touched on new methods of paying for an estimated $160 million in sewers, water lines and roads for the 12,200-acre area.

Votes will follow, but the Common's informal agreement to pursue a development plan marks a major policy shift.

"I hesitate to overdramatize it, but it's a longstanding taboo that is being overturned," said development attorney Mark Hunzeker.

Supporters of a development plan

More on STEVENS, Page 7A
Stevens/Plan needed, officials say

Continued from Page 1A

said it would head off future land-use conflicts, reduce housing costs and protect the area better than developing it piecemeal.

"It's a gorgeous area," said Interim Planning Director John Bradley. "We could really do it right."

Opponents, however, said they would lose their homes and the area's special character.

"What they're saying is: 'You move out. We want your land,'" said Molly Booth, who farms the area with her husband. "I imagine it's pretty much like what the Indians felt."

For decades, land east of Lincoln has been off limits to dense, urban-style development. But three weeks ago, the city-county Planning Commission recommended the city study a possible expansion into Stevens Creek.

Councilman Jeff Fortenberry said a plan might specify ways to mix dense development, acreages, parks and farmland. The study envisioned is similar to what's now going on with the smaller Wilderness Park area.

On March 29, the council and board will hold a joint public hearing on the city's eastward expansion.

While homebuilders have pressured officials to give them more opportunity to develop housing lots, many current residents oppose it. The Booths own land that has been in the family since the 1860s.

"You put so much of your life and blood into a place for generations back," Molly Booth said. "It's been taken care of and loved. And now to put houses and acreages on it — somehow it seems to me that farmland is more important than all that."

Rhoda Retzlaff, who lives on the nearby historic Stevens Creek Stock Farm, said eastward development would be expensive. Lincoln already has identified land north and south that can accommodate an additional 110,000 people, she said.

"I think we should think strongly before we destroy the beautiful farmland in Stevens Creek when so much has already been designated to expand," she said.

Opening Stevens Creek to development likely will affect Lincoln lot prices and already is inflating area land values.

A year ago, an acre of watershed farmland sold for as much as $10,000. The current price has climbed to about $15,000, said commercial real estate broker Richard Meginnis.

Lincoln home lots, meanwhile, are selling for $30,000 and more, said Hunzeker, up substantially from a few years ago.

"We probably won't see the price of lots go down significantly," he said, "but we will see the rate of increase get closer to the rate of inflation."

County Commissioner Bob Workman stressed that officials were advancing a plan, not development. Developers, meanwhile, eagerly await the chance to build in the watershed.

"I can't think of anybody who wouldn't," said commercial developer Kent Thompson. "It's beautiful land with nice, rolling contours."

The city has a rare chance to reserve land along meandering Stevens Creek for parks and trails as well as for such things as flood control, roads and utility easements, he said.

Ken Hake, who has lived on an acreage off 112th Street for 25 years, prefers the area remain rural, but he realizes that may be a dream.

But if the city grows east, Hake hopes it doesn't "sprawl too much" in that direction, as Downtown Lincoln Association chairman, "I'd like downtown to remain the heart of the city," he said.

Eleanor Francke, whose farmland is east of Stevens Creek, said the study must involve area farm owners.

"If you just parcel people here and there, that will have a negative impact on the agriculture of the area," she said.

"We need to conserve the farmland and conserve the resources in the area and pay strong attention to the rights of the current owners of farmland," she said.

"I think it's going to have to have a lot of work before it's done."
Week 14/15

The project groups hand in their final reports and give a 30-minute presentation, followed by questions and answers, to the class and a panel of outside evaluators.

Materials in this section:

- Evaluation form for student project final presentations
- Ecological footprint project summary
- Indicators of sustainability project summary
- Comprehensive Plan review project summary
Indicators of Sustainability for Lincoln, NE
Presentation Evaluation

Evaluator: ____________________________

**Ratings — in terms of organization, clarity, and content —**
of the following sections of the presentation:

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**Ratings for technical aspects of presentation:**

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**Comments**
Our Ecological Footprint Analysis of Lincoln, Nebraska

Final Project Presentation
April 21, 1999

Ecological Footprint Analysis
- Method of estimating current levels
  - productive land
  - resource consumption
  - waste discharge
- Determined for a particular population

Objectives
- Measure Lincoln's footprint
- Scenarios to reduce footprint
- Make policy recommendations

Calculating Lincoln's Footprint
- Define land uses and consumption categories
- Measure consumption
- Make data uniform
- Convert to land area
- Calculate footprint

Lincoln's Footprint is 7.02 hectares per person!

What does it mean?
- Productive land available in U.S.
  - 2.68 hectares per person
- Lincoln's footprint is 2.6 times larger
- Not sustainable!

Conclusions
- Lincoln's current footprint is not sustainable
- Conversion to wind energy reduces footprint:
  - 50% wind, 4.52 ha/capita
  - 75% wind, 3.28 ha/capita
  - 100% wind, 2.05 ha/capita
- Conversion to renewable energy, like wind, would decrease Lincoln's footprint.

Policy Recommendations
- Needs to address:
  - Education, incentives, and sanctions
- Specific policy recommendations:
  - Pass LB 339 (Renewable Portfolio Standard)
    - increase renewable to 10% of portfolio by 2012
  - Pass LB 116 (Net-Metering)
    - customer sales of renewable energy to utility
Per Capita Ecological Footprint for a citizen of Lincoln, Nebraska in 1994

80 GJ/ha of energy = 75,825,359 BTU/ha
12792 BTU/$ in 1994
U.S Population in 1994 = 258,569,000
Lincoln Population in 1994 = 204,633

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Footprint (ha/person) | 5.001 | 0.091 | 0.543 | 0.176 | 0.561 | 0.641 | 0.002 | 7.015 |

Net Imports | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 | 0.026 | 0.000 | 0.000 |
Net Exports | 0.000 | 0.000 | 0.060 | 0.020 | 0.062 | 0.000 | 0.000 | 0.000 |
Landfill/Waste | 0.000 | 0.001 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
Total | 5.001 | 0.081 | 0.598 | 0.196 | 0.623 | 0.615 | 0.002 |
The purpose of sustainable indicators is to practically quantify certain aspects of a community that lead to its environmental, economic, and social well being. The indicators should be used as a tool to describe a situation to anyone who is in the position to influence an indicator’s trend.

**PROCESS**

A group of nine people came together to develop a set of Indicators of Sustainability for the City of Lincoln, Nebraska. We all brought diverse backgrounds and interests to the process. The first thing we did was develop a list serve to communicate with each other.

We then met as a group to discuss sustainability. We did an exercise where we read about the different aspects of sustainability and shared our new knowledge with the group.

The exercise first introduced concepts of technological, social, economic and environmental sustainability. We tried to keep these ideas in mind as we researched and brought back our individual definitions to the group. We researched what had been done in other communities and looked at literature from around the world.

Upon sharing our individual definition of sustainability with the group, we discussed the merits of each and developed a short concise definition which would guide our work.

**Summary**

This short definition: “Sustainable Lincoln promotes and maintains a healthy physical, social and economic environment for current and future generations.” did not prove satisfactory for all and a longer definition was developed:

"A sustainable community flourishes in economic productivity, environmental well-being, and social progress and is underscored and realized through every individual by an internalized responsibility, ethic and obligation to preserving and improving the quality of life for future generations."

After we developed our definition of sustainability we focused on identifying indicators of sustainability. Again we went out on our own to review, research and bring back ideas. It took our group several meetings to identify indicators, we debated and discussed the merits of indicators addressing economic, political/social, and environmental factors.

Discussion focused on which of these three areas most affected the sustainability of a community. Finally, each group member brought a list of indicators which were sent out on the list-serve and we reviewed them based on the Izaak Walton League Suggested Indicator Documentation and the Sustainable Seattle indicator criteria.

We determined that the chosen indicators were relevant, reflect community values, attractive to the media, statistically measurable, logically and scientifically justifiable, reliable leading and policy relevant.

Each of the indicators was reviewed using this criteria to gain consistency and an objective ranking. From the ranked list the indicators were organized into a top tier, a second tier, and a third tier. The top tier was presented to the group, we identified indicators which fit our interests and areas of expertise.

In some instances indicators from the second and third tiers which were related to the highest ranking ones were combined into an overall indicator. The final product of the ranking exercise was a set of indicators for each of us to research.

Each of us then researched and analyzed our indicators following a standard format. The format we followed identified our indicator, how it was to be measured, background, data source and transformation, interpretations and linkages.

Lincoln’s Sustainability Indicators should be used by other classes and groups as a foundation for future work. It will be impor-
tant for future groups to understand the process we went through to arrive at our definition of sustainability and our indicators. One thing we learned about the process is true for any endeavor which addresses human behavior, the process and outcomes are very soft.

The indicators and the behavior they measure are human behaviors which are unpredictable and sometimes irrational. The indicator report should be used for public information, education is a very important part of changing behavior.

Education is critical part of influencing public policy. Informed, concerned citizens can have an impact on decision making bodies, such as city councils and county boards, who then make policy which impacts behavior.

The exercise should be taken out of the classroom and into the community. A neighborhood might be considered as a special project, with a focus on neighborhood sustainability. High school community service students might be involved with the data gathering.

The process needs to be introduced to the community and become a component in our discussion of development in Stevens Creek and beyond.

The philosophical discussion of "what is sustainable" is and its active pursuit is critical to Lincoln as it approaches the 21st century.

**Sustainable development** is "meeting the needs of the present without compromising the ability of future generations to meet their own needs."


"The earth is slowly dying, and the inconceivable - the end of life itself - is actually becoming conceivable"

~ Queen Beatrix of the Netherlands annual Christmas speech in response to *Concern for Tomorrow*, prepared by the National Institute for Health and the Environment (RIVM), 1988.

"Think Globally, Act Locally."

~ Hans Jonas, German Environmental Philosopher
Appendix

Summarized Trends of Indicators

1. Population Growth Rate: ↔
2. Total Electrical Energy Consumed: ↓
3. Renewable Energy Use and Future Prospects: ↑
4. Water Consumption: ↓
5. Sprawl Caused by Development of Large Acreages: ↓
6. Automobile Dependence: ↔
7. Investment in Older and Established Neighborhoods: ?
8. Environmental Report Card: ↓
9. Consumer Solid Waste Generated (not recycled): ↓
10. Consumer Waste Recycled: ↔
11. Industry Commitment to Air Quality: ↑
12. Student Performance in Lincoln Public Schools: ↑
13. Unemployment Rate: ?
14. Lincolmites With Health Insurance: ↔
THE COMPREHENSIVE PLAN

The comprehensive plan is a document that is developed by a community to serve as a guide for the future development of that community. It becomes the template for zoning and subdivision regulations for the community. It is not, as many people believe, a law. The elected officials of the community adopt it as a resolution instead. Therefore, since it is not a law it cannot be enforced by the police powers of the community. It can be said that the comprehensive plan represents the common voices of the community saying this is how we want our community to develop for the future.

The first comprehensive plan for Lincoln was adopted in 1952. It included “recommendations for Downtown renovation and a new northeast radial road connecting Downtown and northeast Lincoln.” Over the next forty-two years it would be revised three times with the last revision occurring in 1994. The current plan contains eight major chapters. They are:

- Chapter I – History of Planning and Development
- Chapter II – General Conditions and Analysis of the Community
- Chapter III – Future Needs and Land Use Plan
- Chapter IV – Transportation
- Chapter V – Public Utilities
- Chapter VI – Community Facilities
- Chapter VII – Urban Design and Historic Preservation
- Chapter VIII – Plan Maintenance and Implementation

SUSTAINABLE DEVELOPMENT

The current state of development and growth in many of our communities “is one of continuing to accommodate the march of low-density, auto-dependent, sprawling growth; facilitating the loss of natural landscapes that sustain us and other life on the planet; perpetuating our irresponsible patterns of waste and consumption; and witnessing the continuing decline in the bonds of community and quality of our living conditions.” It is also said, “current land use patterns do not acknowledge the fundamental finiteness of land, air, water and biological diversity.” To address these concerns, a new approach must be taken. That approach is the concept of sustainable development.

The term “sustainable development” has become popular in the last couple of decades. The Brundtland Commission defined sustainable development as “that which meets the needs of the present without compromising the ability of future generations to meet their own needs.” The National Commission on the Environment provided a more comprehensive definition of sustainable development. They defined it as “a strategy for improving the quality of life while preserving the environmental potential for the future, of living off interest rather than consuming natural capital. Sustainable development mandates that the present generation must not narrow the choices of future generations but must strive to expand them by passing on an environment and an accumulation of resources that will allow its children to live at least as well as, and preferably better than, people today. Sustainable development is premised on living within the Earth’s means (National Commission on the Environment 1993, p.2)”
THE PROJECT

The 1994 Lincoln City-Lancaster County Comprehensive Plan is a good plan in general. It addresses the major topics that any comprehensive plan should, providing the citizens of Lincoln and Lancaster County with a long range, general and comprehensive plan for the future. However, it is lacking in terms of sustainable development. Although the term is mentioned in some chapters, it is only "lip service". While a comprehensive plan is not law, it does set the tone for many regulations and standards for the community. In order for those regulations and standards to reflect sustainability, the Plan must make reference to it much stronger than it currently does. The goal of this project was to analyze and propose changes to the content and use of the 1994 Lincoln City-Lancaster County Comprehensive Plan in order to improve its effectiveness as a mechanism for increasing the sustainability of Lincoln and Lancaster County, Nebraska.

The project analyzed the current 1994 Lincoln City-Lancaster County Comprehensive Plan document in terms of the sustainability, or lack thereof of the Plan and changes to it that would increase the sustainability of Lincoln and Lancaster County. The evaluation process began with discussions and assessment of the current pressures of growth facing the city and the county. It also included the adoption of a standard definition of sustainability that could apply to Lincoln and Lancaster County.

Each section of the comprehensive plan was then assigned to one project member. Each person was responsible for becoming familiar with the content and structure of that section and developing recommendations that would guide Lincoln and Lancaster County closer to sustainable development.

What follows is a brief description of each chapter in the Comprehensive Plan. What is lacking in terms of sustainable development is highlighted and finally, recommendations are stated. The recommendations are in two forms. Where a very specific recommendation or change could be made, it was. Where it couldn't, because of being unsure of the exact wording to be used in a comprehensive plan, the recommendation is a little less strong, suggesting to others that a change is needed, but leaving it to them to develop the correct, legal terminology.

CHAPTER 1 - HISTORY OF PLANNING AND DEVELOPMENT

The first chapter of the comprehensive plan is a chronological outline of important events of planning and development as they relate to Lincoln and Lancaster County. This includes important events to planning in general. No mention is made of important events related to sustainable development. Such events need to be added. While a detailed and thorough investigation of sustainable development would need to be undertaken to uncover such events, two that stand out are the definitions of sustainable development developed by the World Commission on Environment and Development and the National Commission on the Environment. They are:

1987 The World Commission on Environment and Development, commonly know as the Brundtland Commission defines sustainable development as that which meets the needs of the present without compromising the ability of future generations to meet their own needs.

1993 The National Commission on the Environment defines sustainable development as a strategy for improving the quality of life while preserving the environmental potential for the future, of living off interest rather than consuming natural capital.
Final Exam

Three weeks before the final exam, the students receive a list of 31 questions covering all seven learning objectives. They are informed that the final exam will be drawn from these questions.

The exam period is two-hours. Upon handing in their test, each student receives a set of example answers to the exam questions.

Materials in this section:

List of 31 potential final exam questions
Final exam
Final exam example answers
Potential Final Exam Questions

The purpose of the final exam is to evaluate the extent to which the student has met the course learning objectives as listed in the syllabus. Each of the questions listed below address at least one of the learning objectives.

The final exam will consist of a subset of the following questions, selected to ensure that each of the learning objectives for the course is addressed. The questions are presented here in no particular order.

1. Recite selected population statistics from the one-page handout.

2. The federal government has a negligible direct role in land use decisions on private lands, but it has a major indirect influence on those decisions. Describe the main types of federal policies, laws, and regulations that influence the patterns and rate of conversion of farmland to development.

3. Describe the roles of the western Christian Church, Descartes, John Locke, and Adam Smith in shaping the current American land ethic.

4. For each empty cell in the matrix, provide an example of a decision, action, or condition that would influence whether a specific farm is converted to development.

5. Describe five policy changes that the federal government can make to strengthen the role of small farms in U.S. agriculture, and improve local food security and food systems.
6. Describe four policy changes that the federal government could make that would most benefit efforts to preserve farmland, and explain why these changes are important.

7. The U.S. government has a program to fund purchase of development rights to preserve farmland, but funding is limited. (a) List and describe criteria for identifying priority regions for funding. (b) Using these criteria, which five regions in the U.S. would receive priority?

8. Define sprawl, and list eight characteristics of sprawl.

9. Would an economy based solely on Adam Smith's theory of the invisible hand likely be supportive or destructive of most landscape functions? Explain.

10. Listed below are five statements that are frequently made in support or justification of urban growth. Describe why each statement is, or isn't, true.

   We have to grow to provide jobs to people in the community.

   We must stimulate and subsidize business growth to have good jobs.

   If we try to limit growth, housing prices will shoot up.

   Growth is inevitable. Growth management doesn't work and therefore we have no choice but to continue growing. You can't put a fence around our town.

   We have to "grow or die." Growth makes the economy strong and creates better-paying jobs.

11. Describe the relationship between suburban sprawl and inner city decay, and the reasons for this relationship.

12. What is cohousing?

13. Fixed-area based zoning, sliding-scale zoning, and large lot zoning: Define each of these and contrast their effects on the landscape.

14. Describe the main characteristics — climatic, biological, and physical — of eastern Nebraska. In relation to these characteristics, describe the main structural elements of an ecologically designed house for eastern Nebraska.

15. How might an ecologically designed community in eastern Nebraska differ from a conventionally designed suburb?
16. Describe five sources of information (web sites, books, journals, organizations) on the preservation of farmland and open space. Be specific; general answers such as “the internet” are not acceptable.

17. Describe a typical transfer of development rights program. What are its pros and cons relative to a typical purchase of development rights program?

18. Private property rights are often described as analogous to a bundle of sticks. What are the sticks in a bundle? How does purchase or donation of a conservation easement for a piece of property relate to the bundle of sticks analogy?

19. The citizens of a town pass a bond issue to fund the purchase of development rights to preserve farmland. The amount of money is sufficient to buy the development rights of only a small portion of the total farmland in the town. List five criteria that the town could use in determining which farms to protect, and give the rationale for each criterion.

20. Define “takings” and “givings” in the context of farmland preservation. How are the two concepts related?

21. Oregon has one of the strongest farmland protection policies and regulations in the country, yet Oregon farmland continues to be converted to development with no end in sight. What are the major short-comings of the Oregon land use law, and how would you change it to make it more effective?

22. When some land within a community is zoned for exclusive farmland use, who wins and who loses? What strategies can be taken to spread the benefits more evenly?

23. Why is a Geographic Information System a particularly effective tool for landscape planning and community education?

24. A community’s zoning ordinances establish the framework or envelope within which the real estate market operates. Communities can manage growth by controlling the size of the envelope, that is, the amount of land that is zoned for residential or commercial uses and the allowable densities within these zones. What factors should a community consider in setting the size of the development envelope? What are the implications of establishing too small or too large an envelope?

25. Describe the four most important land use planning issues facing Lincoln, and give your rationale for selecting them.

26. Describe the four most important land use planning issues facing the Lower Platte River Corridor, and give your rationale for selecting them.

27. What are the key characteristics of an effective letter to the editor of the daily newspaper?
28. In response to a short article presented as part of the final exam, write a draft letter to the editor.

29. Describe the purpose and general structure of a city Comprehensive Plan.

30. With regard to a community, define "indicator of sustainability," and list five characteristics of a good indicator.

31. What is a community's ecological footprint? How is the energy use of a community incorporated into the calculation of its ecological footprint?
1. (a) (2 points) What is the annual increase in world population? (b) (3 points) How many counties with a population equal to that of Lancaster County, Nebraska would be required to hold one year's increase in the population of the United States?

2. (30 points) The federal government has a negligible direct role in land use decisions on private lands, but it has a major indirect influence on those decisions. Describe the main types of federal policies, laws, and regulations that influence the patterns and rate of conversion of farmland to development.

3. (20 points) The U.S. government has a program to fund purchase of development rights to preserve farmland, but funding is limited. (a) List and describe criteria that could be used to identify priority regions for funding. (b) Using these criteria, which five regions in the U.S. would receive priority?

4. (15 points) Define sprawl, and list eight characteristics of sprawl.

5. (30 points) Describe the main characteristics — climatic, biological, and physical — of eastern Nebraska. In relation to these characteristics, describe the main structural elements of an ecologically designed house for eastern Nebraska.

6. (10 points) Describe five sources of information (web sites, books, journals, organizations) on the preservation of farmland and open space. Be specific; general answers such as "the internet" are not acceptable.

7. (25 points) The citizens of a town pass a bond issue to fund a purchase of development rights program to preserve farmland. The amount of money generated by the bond issue is sufficient to buy the development rights of only a small portion of the total farmland in the town. List five criteria that the town could use in determining which parcels to protect, and give the rationale for each criterion.

8. (15 points) Define "takings" and "givings" in the context of farmland preservation. How are the two concepts related?

9. (20 points) Describe the four most important land use planning issues facing Lincoln, and give your rationale for selecting them.

10. (30 points) In the form of a letter to the editor of the Lincoln Journal-Star, write a response to the attached article "Business coalition to promote growth."
Business coalition to promote growth

BY MARK ANDERSEN Lincoln Journal Star

Growth is good, proclaims a coalition of Lincoln business groups planning to spread the word through radio and newspaper advertisements.

Yes — but rapid, unplanned growth also can cause problems, says at least one former city leader.

The Coalition to Continue Lincoln’s Prosperity — a new group formed by the Lincoln Independent Businessman’s Association, Lincoln Chamber of Commerce and Home Builders Association of Lincoln — announced Friday that community sentiment against growth threatens the city’s prosperity.

“The coalition’s goal is to point out all the positive things that growth has brought to Lincoln,” said spokesperson and business owner Mary Imig.

From recent news articles and City Council and Lancaster County Board discussions, Imig said, coalition members realized some people believe Lincoln is growing too fast and that somehow, growth should be dramatically slowed.

The coalition will spread the word that growth has resulted in more jobs, new entertainment opportunities and a sinking property tax rate, coalition members said at a downtown press conference.

But not all growth is beneficial, countered former Lincoln Mayor Helen Boosalis. Good growth is planned growth, “not the kind of piece-meal growth that occurs with too-fast growth,” she said from her home. Rushed growth and development “largely benefits the developers and imposes inequitable future burdens on the taxpayer,” Boosalis said.

Said Imig: “The members of this group support responsible growth.”

“Not only are we for growth, we definitely are not going to neglect existing neighborhoods,” said Roger Reynolds, home builders association president.

“Over the past eight years, the quality of life in Lincoln, Nebraska, has prospered,” said Maggie Higgins, LIBA vice president.

For the community, a growing Lincoln has brought additional services, shopping and entertainment, said Kelvin Hullet of the Lincoln Chamber of Commerce.

“Every job in Lincoln, public or private, is linked to a healthy growing economy,” he said.

Hullet said the coalition was uncertain how much it would spend on advertising. He said also the coalition was uncertain if it would endorse city candidates. LIBA and the chamber have both donated money to the mayoral campaign of Republican Cindy Johnson.

According to the coalition, here are what it says are quick facts about Lincoln’s growth during the past eight years:

- Property tax rates dropped 31.3 percent.
- Sales tax collections increased 61.5 percent.
- More than 14,000 new homes and apartments were built.
- More than $900 million was invested in residential construction.
- Almost $2 billion was invested in construction projects.
- The median household income for a family of four reached $51,400.
- Lincoln ranked as one of the safest cities in the nation in markets of 100,000 to 250,000 population.
Final Exam Example Answers

1. (a) (2 points) What is the annual increase in world population? (b) (3 points) How many counties with a population equal to that of Lancaster County, Nebraska would be required to hold one year’s increase in the population of the United States?

   a. 78 million
   b. $2,658,000 \div 233,319 = 11.4$

2. (30 points) The federal government has a negligible direct role in land use decisions on private lands, but it has a major indirect influence on those decisions. Describe the main types of federal policies, laws, and regulations that influence the patterns and rate of conversion of farmland to development.

   Federal works projects: Funding of infrastructure such as roads and sewers subsidizes and influences the location of development. Construction of federal offices, military bases or other facilities can trigger development of surrounding areas.

   FAIRA farmland protection program: Federal funding of PDR programs at state and local levels assists in the protection of some farmland.

   Farm programs: Price and income support, crop revenue insurance, payments for soil and water conservation (e.g. CRP) may help some land to stay in agriculture, although the effect is short-term.

   Tax policies: Federal estate taxes may force heirs to sell a farm in order to pay tax debt. Alternatively, federal tax law allows landowners to take a charitable deduction against income taxes for the value of donated conservation easements, thus encouraging some people to permanently protect their land. In a limited set of circumstances, federal estate taxes are reduced for farmland encumbered by a permanent conservation easement. Deductibility of mortgage interest for first and second homes accelerates development.

   Population policies: Immigration and other policies contributing to rapid U.S. population growth drive farmland conversion for development.
3. (20 points) The U.S. government has a program to fund purchase of development rights to preserve farmland, but funding is limited. (a) List and describe criteria that could be used to identify priority regions for funding. (b) Using these criteria, which five regions in the U.S. would receive priority?

One strategy would be to direct funding to those regions with the highest risk of loss of agricultural production capacity to development. The American Farmland Trust defined high risk regions as those with (1) large amounts of prime and unique farmland, and (2) high rates of development. Using these criteria, they identified 20 high risk regions (see page 27, Under the Blade). The five highest risk regions were Sacramento and San Joaquin Valleys, central CA; the Northern Piedmont region (southeastern PA, Maryland, northeastern VA); southern Wisconsin and northern Illinois drift plain; Texas Blackland Prairie (eastern TX); and Willamette and Puget Sound Valleys of eastern OR and WA.

4. (15 points) Define sprawl, and list eight characteristics of sprawl.

Haphazard growth or extension outward, especially that resulting from real estate development on the outskirts of a city.

American Heritage Dictionary, third edition

The Vermont Forum on Sprawl defines sprawl as "dispersed development outside of compact urban and village centers along highways and in rural countryside."

Some traits associated with sprawl:

1. unlimited outward extension,
2. low-density residential and commercial settlements
3. leapfrog development
4. fragmentation of powers over land use among many small localities
5. dominance of transportation by private automotive vehicles
6. no centralized planning or control of land-uses
7. widespread strip commercial development
8. great fiscal disparities among localities
9. segregation of types of land uses in different zones
10. reliance mainly on the trickle-down or filtering process to provide housing to low-income households
5. (30 points) Describe the main characteristics — climatic, biological, and physical — of eastern Nebraska. In relation to these characteristics, describe the main design elements of an ecologically-designed house for eastern Nebraska.

**Climate:** Continental climate with cold, dry winters; hot summers with spring and early summer maximum precipitation; considerable winds, generally from south in summer, north in winter; variable precipitation with moisture often limiting.

**Biological:** Main native vegetation is a highly diverse tall-grass prairie dominated by warm-season grasses; trees restricted to riparian areas, but expand to uplands in the absence of fire.

**Physical:** At approximately 40 degrees north latitude, south-facing slopes receive the most solar radiation, and the sun at mid-day is much closer to the horizon at the winter solstice than it is at the summer solstice. The area has moderate topographic relief drained by many small streams. Generally deep soils.

**Ecological design:** There are many possible designs; the key is relating the design elements to the environmental characteristics of the region. Some possibilities include:

- **Building site** has a south aspect, and is not in a flood plain or on a ridge top.

- A low-stature building, perhaps partially sunken into the ground, with walls of native materials — strawbale or rammed earth — built thick for insulation. No windows on the north and west walls. Large south-facing windows shaded by long overhangs to block the summer sun but allow the lower-angle winter sun to enter. Coniferous windbreaks planted to the north of the house, and deciduous windbreaks to the south.

- On the roof, solar hot water and photo-voltaic panels, oriented due south with an adjustable vertical angle to maximize solar capture during different seasons. Perhaps a wind turbine electrical generator. High thermal mass flooring by the south windows to hold winter heat.

- The interior floor plan places utility and other rarely used rooms on the north side as insulation; the main living spaces are on the south side or in the center.

- Runoff from the roof is captured and transferred to a cistern. Composting toilets are used, and a constructed wetland treats graywater.

- Landscaping emphasizes native warm-season grasses and high biological diversity.

6. (10 points) Describe five sources of information (web sites, books, journals, organizations) on the preservation of farmland and open space. Be specific; general answers such as “the internet” are not acceptable.

See reference list handed out first day of class.
7. (25 points) The citizens of a town pass a bond issue to fund a purchase of development rights program to preserve farmland. The amount of money generated by the bond issue is sufficient to buy the development rights of only a small portion of the total farmland in the town. List five criteria that the town could use in determining which parcels to protect, and give the rationale for each criterion.

Five examples are:

- Protection of the parcel fits the goals of the current comprehensive plan and zoning. There is no sense purchasing development rights within areas planned for development.

- The owner of the parcel is willing to sell the development rights. PDR programs are voluntary.

- Quality of the farmland. Prime farmland and farms with significant infrastructure (e.g., irrigation systems, farm buildings) are likely to be more productive and to stay in agriculture.

- Parcel is contiguous with other protected parcels or in an area that still includes a critical mass of farmland. Isolated farms surrounded by development and distant from support services are unlikely to stay in agriculture, so PDR most likely will protect open space rather than a functioning farm.

- Cost of the development rights. What price will the owner accept? Which purchases give the town the most protection per dollar spent?

8. (15 points) Define “takings” and “givings” in the context of farmland preservation. How are the two concepts related?

A takings is an unreasonable reduction in the value of a private property resulting from a government regulation. Much debate has occurred regarding the amount of reduction in value that can occur, and for what reasons, before the reduction constitutes a takings. Zoning or other government actions to restrict the conversion of farmland to development is often challenged as a takings because the farmland value is less than the land’s value for development. Owners often demand compensation equal to the difference between the agricultural and development value.

An increase in the value of private property resulting from taxpayer expenditures for infrastructure such as roads and sewers can be considered a givings. If a parcel’s value increases because government restrictions on other parcels reduces the total amount of developable land, this windfall could also represent a givings.
In cases where compensation for reduced value is required, it is based on the difference between the value for development and the value for remaining allowable uses such as agriculture. Should the government be required to pay compensation for that portion of the land’s value resulting from public infrastructure? If a government wishes to preserve agricultural land through purchase of development rights, how should the difference between farmland and development value be calculated if part of development value is attributed to taxpayer funded infrastructure? In cases where development occurs, should part or all of a speculative windfall be recaptured by the taxpayers through real estate transfer taxes or other means?

9. (20 points) Describe the four most important land use planning issues facing Lincoln, and give your rationale for selecting them.

In their letter to candidates for mayor of Lincoln, Dean Steward and other members of the College of Architecture identified ten land use and planning issues “of paramount importance to the future of Lincoln.” Their list:

1. Antelope Valley project
2. Downtown Sub-area Plan, Linked to a Comprehensive Transportation/Traffic Plan
3. Planning for development of Stevens Creek Watershed
4. Planning for development in the vicinity of Wilderness Park
5. County-wide environmental zoning
6. Acreage development controls
7. Lack of incentives for central city development and infill
8. Proposal for establishment of a Community Development Project for downtown
9. South and east beltways
10. Improved process for assessing developer fees

The importance of each of these issues, along with additional issues of concern to Lincoln, are described in Dean Steward’s letter, which was handed out to the class during the third class period. Many of these issues were also viewed and discussed during the Lincoln field trip.

10. (30 points) In the form of a letter to the editor of the Lincoln Journal-Star, write a response to the attached article “Business coalition to promote growth.”

A good letter will make two or three concise, relevant points; will substantiate the points with facts and references; will promote new insights rather than simply repeating information from the article; and conclude with a suggested action or point of view.
Other Syllabi

Urbanization of Rural Landscapes is one of many university courses dealing with some aspect of the issue of land use planning and the conversion of rural landscapes. In this section, the syllabi from four other courses are presented. One of the courses, “Property and Community,” was developed by:

Dr. Charles Geisler
Department of Rural Sociology
237 Warren Hall
Cornell University
Ithaca NY 14853
607-255-1691
ccg2@cornell.edu

The other three courses are offered at the University of Nebraska-Lincoln by:

Dr. Joseph Luther
Department of Community and Regional Planning
314 Architecture Hall
University of Nebraska
Lincoln NE 68583
402-472-9213
jluther@unlinfo.unl.edu

They are presented here with the permission of Dr. Geisler and Dr. Luther as a source of additional ideas for instructors teaching about issues of land use.

Syllabi in this section:

Property and Community (Giesler)
The Community and the Future (Luther)
Legal Aspects of Planning (Luther)
Introduction to Planning (Luther)
Syllabus: Property and Community

Professor Charles C. Geisler
Rural Sociology 640/Fall, 1998
Class: Thursdays 1:25-4:25 p.m.
G37 Plant Science
Office Hours: Fri. 9:30-12, 237 Warren

Course Overview:

In recent years, property issues of many kinds have moved to center stage in the U.S. society. Public media and academic discourse routinely feature the pros and cons of property topics such as privatization, ownership ethics, the " takings" implications of landowner regulation, the distribution of ownership, the so-called tragedy of the commons, public land management successes and debacles, Indian land claims, the separation of ownership and control in farmland, and many more. Regularly, the evening news processes unsettling ownership questions—who owns the INTERNET, genetic materials, AT&T, the Dead Sea Scrolls, universities, Antarctica, ecosystems, and joint property following divorce? As such questions vie for attention, three things seem clear. Property questions are of foremost importance in day-to-day life; "public" and " private" are losing their relevance as useful ownership labels; and a new theory of ownership widely referred to as the social relations theory of property is displacing the old notion of "property as things."

Social relations are the business of sociology. Not surprisingly, classical sociological theorists were intensely interested in property questions, as are their living counterparts. Questions relevant to a "social relations theory of property" have captured attention within the discipline on many fronts. Where does "ownership" originate in different societies? Is possession inborn or socially constructed? What gives property its social value (prestige, power, privilege)? How did the rise of the nation state, the spread of colonialism, and the rise of postmodernism redefine property? Under what conditions and with what success do different property systems coexist? How can gender-based ownership systems be explained? What is the relationship between ownership type and natural resource use? How do the elites in society create ideologies and institutions which justify their accumulation of property? What are the interactions between community forms and evolving property rules?

This seminar welcomes students excited by these questions and willing to read/investigate/discuss the centrality of property institutions in our lives. Prior knowledge about property as an important social institution and set of social relationships is less crucial than imagination, interest, and critical thinking. The course will challenge various orthodox ideas. Among these are that notion that property is fixed and constant; that privatization of ownership is an inexorable tendency across societies; that public ownership is socially equitable; that poverty goes hand-in-hand with the lack of property; that the American Dream of home ownership applies to the majority of Americans; and that landowners in the United States generally feel they have suffered a loss in property value as a result of government environmental or land use regulation. Also welcome in the course are students who, through exposure to other societies or historical periods, can illuminate lesser known or inadequately understood property questions.

My particular background and interest is with landed property. You may bring other property connections and referents with you. The seminar will be the better for it, but expect my biases to frequently return us to terra firma. The course will have succeeded if it helps you personalize the significance of property, if it moves from literacy to fluency on spectrum of property subjects, and if it opens pathways to new research previously unknown to you. There is no assigned text for the course; instead, acquire materials we cover that you'll keep because they win your intellectual respect or reorient your values. Readings, some of which you will contribute (see below), will be available for use in Warren 134.
Student Participation:

This seminar has been co-designed with graduate students. A task force of students made suggestions earlier this year as its form and content. They urged that it be highly interactive and participatory, qualities I have taken seriously in revising this syllabus. Many topics will be covered during the semester, and students will have significant say in what these are. They will be centrally involved in fashioning discussion of these topics and share project results with other students as well as myself. I will move from a lecture-discussion mode in the first third of the semester to one of discusant and consultant as your property interests emerge. I will offer focused one-on-one attention to the property research needs of all students seeking such assistance. The course will have three evaluative check points (4 weeks, 8 weeks and end of course) to realign as necessary.

Course Calendar:

The seminar will meet for three hours each week for 13 weeks. Two topics will be covered each week, except for week 13 which is reserved for final student presentations and course evaluation. The semester will consist of three learning blocks. The first four weeks combine lectures and discussion, and will offer basic literacy on property. The second 4-week block entails discovery and description. It will involve a field project/reality check. The final four weeks aim at analysis and synthesis, that is, students will prepare a brief paper directed at a property topic of personal interest to you which I have approved. Students will complete a paper proposal form by the end of week six in the semester, stating your focus (see last page of syllabus). During the entire 12 weeks, students will rotate in preparing discussion questions on assigned readings, circulate them to other class members, and facilitate seminar discussions. These 4-week blocks are elaborated below.

Property Literacy (Sept. 3-24):

Following an introductory lecture and course overview on August 27, I will lecture for 4 weeks on eight basic property questions (each class consists of two 1.5 hour blocks). Lectures will be limited to 1/2 hour, leaving ample time for discussion. During these 4 weeks (ending on Sept. 24), I will pick 8 individuals or groups to compile questions and themes deserving further classroom consideration. These they will place on the RS640 website (www.cals.cornell.edu/dept/ruralsoc/640) for others to consider before class. These should NOT summarize the readings. Discussion questions should assume working knowledge of the readings by class members and push beyond mere summary. For example, in what context was the article written; what are its lessons, limitations, inconsistencies; how does the reading intersect with sociology or other disciplines represented in the class; of what practical value are the readings?

Property Discovery and Description (Oct. 1-22):

Students will identify topics of interest to them from the topic list attached to the syllabus (other topic and reading areas are welcome) during the first 2 weeks of class. These topics will comprise the course substance for the remaining 8 weeks of the course. Individually or in pairs, students will commit to leading discussion about their topic at a particular class time and prepare a series of questions relevant to the selected readings and put them on the course Web-site a week before class. Here, I will participate not as a lecturer but as member of the class discussion. During this period, I expect students to work with me one-on-one in developing final paper/project topics (due in my office on Oct. 30).

I will also assist you in the following field component of the course. Most landowners have property stories about their property that go unrecorded. These may span generations or they may have begun yesterday. Each student taking the course will interview two landowners using a semistructured interview format and describe the similarities and differences they uncover, as well as compare their findings to a recent national survey completed by the American Farmland Trust (www.farmland.org). I will offer additional questions of possible interest from which student can choose in preparing this fieldwork. These results will be compiled and summarized in a brief (5-10 page, double spaced) paper due
in class on October 30. The questions and overall interview experience will become part of the grist in our analytic discussions during the final 4 weeks of class.

Property Analysis and Synthesis (Oct. 29-Nov. 19):

By this point, you will have digested important baseline readings on property, grounded your learning in two in-depth interviews, and compared your findings with those of your classmates. New questions will replace those you began the course with, regardless of your prior knowledge about property. The baseline readings from block one above and those you have selected for the remainder of the course will now assume new meaning. Through class discussion, conferencing with me, and resolving the issues raised in your research paper, a degree of synthesis about such issues (e.g., the future of ownership, the balance between public and private sector ownership models, and a social relations theory or property, etc.) will emerge. You are encouraged to introduce insights and findings from your project research into class discussions during this final 4-week period of the course and more systematically in the final class meeting (December 3). At that time, all students will be asked to make a 10 minute presentation to the class; you may incorporate any feedback you acquire from this meeting in the final version of your paper which will be due, in duplicate, on December 5th.

Grading:

Grades will have three components, each worth 33%. All students will assume (or share) leadership for two discussions, one during the first 4 weeks and the other during the final 8 weeks. The timing of the former will be arbitrary, decided by me; the timing of the latter is your choice. I will give consideration to the quality of the questions/themes you pose to structure discussion and to your ability to include as many students as possible once discussion begins. Second, your descriptive paper based on your two interviews will signal your understanding of property issues in everyday life and your sensitivity to legal, political and historical context in explaining who owns land and why. I encourage you to compare your findings to the national results, where relevant, of the AFT survey referred to earlier. Finally, your grade will depend on your ability to tie property theory and fact together in your final project. Please select from one of three formats: a research paper, an annotated bibliography, or a "property curriculum" listing readings and instructional ideas for a learning module that could be used at the high school or college level in courses on contemporary issues, sociology, ethics, etc. I want you to demonstrate that some facet of property (its origins, value, distribution, policy applications, future directions, etc.) is of potential use in your own research or that of others in your discipline.

Summary of Key Dates:

Sept. 12: Return form indicating your selection of Reading Topics & Dates (see pg. 9)
October 1: Group learning block one begins
October 22: Group learning block two begins
October 30: Landownership descriptive paper due
            Final paper/project proposal due (please use form provided at end of syllabus)
November 2: Group learning block three begins
December 3: Student presentations, synthesis/evaluation
December 5: Final paper due

Seminar Schedule by Thematic Areas:

Readings for the first four weeks, along with those listed as discretionary for the remainder of the course, are available in Warren 134. Please use them briefly and return for others to access. Note: the latter readings are only suggestions to get you thinking about particular thematic areas. What you select for your classmates to read and discuss during the second 8 weeks is your decision.
Week 1:

a. The Complexity of Property


b. The Origins of Property


Week 2:

a. Property and Personhood


b. Property and Place


Week 3:

a. Property and Value


a. Property and Takings


Week 4:

a. Property and Givings


b. The Future of Property


Week 5-13 (Students select a topic from the attached list and a date in the remaining 8 weeks of the course for leading classroom discussion. Please fill out and return form at end of syllabus.)

Discretionary Reading Topics:

1. Property and Gender


2. Property and Equity Limitation:


3. Property and Social Welfare


4. Property and Social Movements


5. Property and Democracy

6. Property and Race

7. Property and Technology

8. Property and Access

9. Customary Property

10. Property and Conservation

11. Property and Community

13. Property and Privatization

14. Property and Speculation
15. The New Property

16. Common Property
      and Acheson (eds.), The Question of the Commons. Tucson, Univ. of Arizona Press.
      Development and Cultural Change 41:229-318.

17. Intellectual Property
   a. Kloppenburg, J.R., Jr. (1988). Chs. 1, 7, 10 in First the Seed: the Political Economy of
      Oklahoma City: Society for Applied Anthropology.

18. Property and the Frontier
      Real Cost of Real Estate Speculation. New York: Praeger.
      Concerning the Role of the Frontier in American History. Boston: D.C. Heath & Co.)

19. Post-Modem Property
      the society of Christian Ethics. Washington D.C.

20. The Social Construction of Property

21. Property and the Labor Theory of Value

22. Aboriginal Property
      K.A. Miller (eds.), National Parks, Conservation and Development. Washington, D.C.: 
      Smithsonian Institution Press.
23. Property and Social Responsibility


24. Property and Culture


25. Property and the Trust Doctrine(s)


FINAL PAPER/PROJECT DESCRIPTION:
(DESCRIPTION DUE OCT. 30)

NAME: ___________________________ e-mail: ___________________________

TITLE OF PAPER/PROJECT (see p. 3 under "Grading" for options):

ABSTRACT/SUMMARY DESCRIPTION OF PAPER/PROJECT (300 WORDS):

OUTLINE: (use additional page as necessary)
TOPIC SIGN-UP FORM

NAME: ___________________________ E-MAIL: _______________________

TOPIC #1 (FIRST CHOICE):

TOPIC #2 (SECOND CHOICE):

NAMES OF OTHER STUDENTS INTERESTED IN TOPIC #1:

NAMES OF OTHER STUDENTS INTERESTED IN TOPIC #2:

REQUESTED PRESENTATION DATES:

SUBSTITUTE READINGS:

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319
THE COMMUNITY AND THE FUTURE
Spring 1998
Dr. Joseph Luther
314 Architecture Hall
402.472.9213
jluther@unlinfo.unl.edu

COURSE DESCRIPTION
This Integrative Studies course addresses the images and implications of the community of the future. This course of study will include the following themes: envisioning the future, the nature of the community, community development, community planning, strategic planning, futuristics theory and practice, paradigms and dilemmas, sustainable development, neo-traditional town planning, the new urbanism, and sustainable design. Learning activities will feature multi-media presentations. The emphasis of learning will be on exploration, description, and explanation of the emerging imperatives affecting our homes and towns. Students will be challenged by activities which require critical thinking about global issues within local environmental, economic and socio-cultural contexts.

MEETING TIMES
• Tuesday and Thursday at 11:00 am to 12:15 PM in Arch 305

REQUIRED TEXTS

EVALUATION
• Grading will based upon the following factors:
• Class participation = 5 %
• Controversy report = 10 %
• Internet discussions = 10 %
• Book review = 20 %
• Term paper = 25 %
• Final examination = 30 %
COURSE OUTLINE

WEEK 1 - ENVISIONING THE FUTURE
Jan. 13: Introductions and course overview.
See Videos: Science fiction images of the future.
Jan. 15: Lecture: The Image of the Future
See Video: Buckminster Fuller - Grandfather of the Future
Read Text: The Geography of Nowhere

WEEKS 2 & 3 - THE NATURE OF THE COMMUNITY
Jan. 20: Lecture: What Was the Community?
Read Handouts
Jan. 27: Large Group Activity: What Could Be the Community?
See Video: Community Visioning
Jan. 29: Forum: What Should Be the Community?
Guest Discussants
Internet Discussants

WEEKS 4 & 5 - COMMUNITY DEVELOPMENT
Read Handouts
Begin book review readings.
Feb. 5: Small Group Activity: Exploring Community Development Techniques.
Feb. 10: Role Play: Action Planning.
Feb. 12: Forum: Community Development Practice.
Guest Discussants

WEEK 6 - COMMUNITY PLANNING
See Video: Why Plan?
Internet Discussants

WEEK 7 - STRATEGIC PLANNING
Read Handouts
Feb. 26: Large Group Activity: Environmental Scan & SWOT analysis.
WEEKS 8 & 9 - FUTURISTICS: THEORY & PRACTICE
Mar. 3: Lecture: History, Theory & Philosophy of the Futures Field.
Mar. 5: Small Group Activity: Futures exercises
Read Handouts
Mar 10: Large Group Activity: Presentation of Book Review Reports.
Controversy report assignments
Discussants
Term Paper Assignments

WEEK 10 - PARADIGMS & DILEMMAS
Mar 17: Lecture: Environment, Perceptions, Value and Behavior.
Mar 19: Large Group Activity: Conflicts and rebellions.
Controversy reports due.

WEEK 11 - SPRING BREAK
Do something unexpected in an unusual place!

WEEKS 12 & 13 - SUSTAINABLE DEVELOPMENT
Mar 31: Lecture: Basic Theory and Philosophy.
See Video: Conversation for a Sustainable Society
Apr. 2: Small Group Activity: Testing Goals and Objectives.
Apr. 7: Large Group Activity: Making Choices.
Apr. 9: Forum: The Sustainable Community.
Discussants
Internet Discussants

WEEKS 14 & 15 - NEO-TRADITIONALISM AND THE NEW URBANISM
Apr. 16: Small Group Activity: Sketch Plans.
Discussants
Term paper is due.

WEEK 16 - SUSTAINABLE DESIGN
Read Handouts
Assign Take-Home Final
Apr. 30: Forum: Implementing Sustainable Design.
Discussants

WEEK 17 -- FINALS
Take home final is due – Tuesday, May 5, 1998 at 4:00 PM
CRP 804
LEGAL ASPECTS OF PLANNING
SPRING 1999
Joseph Luther & Thomas C. Huston

3 credits: lecture/lab
Meets Tuesdays at 6 PM to 8:50 PM

COURSE DESCRIPTION: Applications of constitutional, common, administrative, and statutory law in the planning process are studied. The roles of the branches of American government in the regulation and control of land use and development, as well as in the planning, development, and delivery of public services and facilities are examined. The course includes study of legal theories, issues, cases, and applications relevant to professional planning practice, as well as the legal responsibilities of participants in the planning process.

PREREQUISITES: CRP 400/800 or permission of instructor.

REQUIRED TEXTS:
2. Course reader available at Nebraska Bookstore.

GRADING POLICY:
Quizzes: There will be two short quizzes during the course. These will be objective tests and will count 10 percent, each, of your final grade for the course, for a possible total of 20 points.

Examinations: There will be two comprehensive examinations during the course. One will be at midterm and the other will be a take-home final. These will be essay examinations. The midterm examination will count 20 percent of your final grade. The take-home final examination will count 30 percent of your final examination.

Planning Commission Review: Students will attend and review at least one planning commission meeting. This review may be handed in any time during the semester, prior to dead week, and will constitute 10 percent of the final grade.

Moot Planning Commission Presentation: Students will participate in a moot commission process during the last week of classes (deadweek). These activities will constitute 10 percent of the final grade for the course.

Class Participation: This concept includes attendance, being prepared, speaking out, and generally participating in the class in a meaningful way. This component will constitute 10 percent of the final grade for the course.
IAN 12 - Week 1: Introductions and Course Overview
Luther and Huston
1.1: Introductions
1.2: Review of Course Materials

IAN 19 - Week 2: Comprehensive Planning & Zoning
Luther
2.1: Enabling Legislation
2.2: Process of Comprehensive Planning

Readings:
1. Solnit, Preface, plus pp. 1-8 and 38-57

IAN 26 - Week 3. The Legal Basis of Land Use Controls
Huston
3.1: History of Land Use Zoning
3.2: Constitutional Basis and Issues

Read Text
1. Solnit, pp. 105-125
2. Constitution of the United States - Articles V and XIV.

FEB 2 - Week 4. Zoning Procedures
Luther
4.1: Zoning Terminology
4.2: Zoning Procedures and Administration

Read Text
1. Solnit, pp. 9-37
3. Lincoln, City of (1979) "Design Standards for Zoning Regulations."
FEB 9 - Week 5. Zoning Hearings
Huston
5.1: The Planning Commission
5.2 Legislative, Quasi-Judicial and Judicial Appeals

Read Text
1. Solnit, pp. 58-104
2. Nebraska Revised Statutes 84-1408 to 84-1414, "Open Meetings Law."
3. Nebraska Revised Statutes 19-910, "Board of Adjustment."
4. Ex Parte Communications

FEB 16 - Week 6. Land Development
Luther
6.1: QUIZ NUMBER 1
6.2: The Development Process

Readings:
2. Lincoln, City of (1988) "Land Development Procedures."

FEB 23- Week 7. Development Rights
Huston
7.1: Regulation Versus Taking
7.2: Eminent Domain and Other Methods of Taking

Readings:
2. First English Evangelical Lutheran Church of Glendale v County of Los Angeles, California. 482 US 304, 96 L Ed 2d 250,107 S C+ 2378.
5. Dolan v. City of Tigard
MAR 2 - Week 8. The Subdivision of Land
Luther
8.1: Subdivision Design Process
8.2: Subdivision and Planned Unit Development Guidelines

Readings:
1. Solnit, pp. 125-146

MAR 9 - Week 9. Other Land Use Controls
Huston
9.1: Overlay and Special Districts; Contract Zoning
9.2: Performance-Based Zoning and Aesthetic Regulations

Readings:

MAR 16 - Week 10. SPRING BREAK WEEK
Luther

MAR 23 - Week 11: Environmental Policy and Review

10.1: MIDTERM EXAMINATION 📅
10.2: Environmental Policy, Review and Mediation

Readings:
1. Solnit, pp. 171-178
2. National Environmental Policy Act (42 USCA § 4321 et seq.)
3. Washington State Environmental Policy Act, Chapter 43.21C RCW.
MAR 30 - Week 12: Management of Growth

Huston

12.1: Costs of Growth and Sprawl.
12.2: Vesting of Development Rights
12.3: Tools and Techniques; Private Growth Controls.

Readings:
2. Whitehead Oil Co. v. City of Lincoln, 245 Neb. 660 (Case #2); 245 Neb. 680 (Case #3)
4. Construction Indus. Ass'n. of Sonoma v. City of Petaluma, 522 F. 2d 897 (9th Cir 1975)

APR 6 - Week 13: Codes

Luther

13.1: QUIZ NUMBER 2

13.2: Building and Housing Codes

Readings:

APR 13 - Week 14: Planning, Zoning and Liability

Huston

14.1: Municipal Liability and the Liability of the Planner
14.2: Public Private Sector Relationships

Readings:
APR 20 - Week 15: Social Dimensions of Legislation

Luther
15.1. Administration of Public Services
15.2. Social Equity and Social Justice.

Readings:

APR 27 - Week 16: Dead week; Synthesis/Moot Hearing
Take-home final examination will be handed out at this time.

MAY 4- Week 17. Finals week

TAKE HOME FINAL EXAMINATION

Final examination is due in Dr. Luther's office on Tuesday, 4 May 1999 by 5:00 PM, no exceptions.
INTRODUCTION TO PLANNING

Fall 1998
Dr. Joseph Luther

3 credits: lecture
Monday and Wednesday
10:30 a.m. to 11:45 a.m.
Architecture Hall - Room 305

COURSE DESCRIPTION: The field of community and regional planning is introduced and is studied in relation to the history of cities, urbanization, and regionalization. The course explores the origins and evolution of American urban and regional planning practice. The planning process as a response to social, political, physical, and economic factors is analyzed. The course introduces the community comprehensive planning process, plan implementation, and functional areas of planning.

REQUIRED TEXTS:

RESERVE TEXTS IN ARCHITECTURE LIBRARY:

GRADING:
The final grade for this course will be based on the following elements:
Class participation = 10 points
Book Review =20 points
Graduate Students Term Paper = 25 points
Mid-Term Examination = 30 points
Final Examination = 40 points
COURSE OUTLINE

WEEK 1: KNOWLEDGE: THE BASIS FOR PLANNING
1.1 Introductions and Course Overview
1.2 Environmental Systems

HANDOUTS
   Course Outlines
   Book Review Assignments

VIDEO:
   "The Challenge of Change"

READINGS:
   Text - pp. 3-39

WEEK 2: HISTORY OF PLANNING I
2.1 Ancient and Classic Cities
2.2 Medieval and Neoclassic Cities

READINGS:
   Text - pp. 43-88

WEEK 3: HISTORY OF PLANNING II
3.1 Labor Day Holiday
3.2 Colonial Cities and Villages

READINGS:
   Text - pp. 89-160

WEEK 4: HISTORY OF PLANNING III
4.1 The Transitional Cities and Early Twentieth Century Planning
4.2 Contemporary Planning Since 1945

READINGS
   Text - pp. 163-189

VIDEO:
   "Why Plan?"

WEEK 5: THE MODERN PLANNING PROCESS
5.1 Public Sector Planning
5.2 Private Sector Planning

READINGS:
   Text - pp. 193-237

NOTE: Book Reviews are Due
WEEK 6: THE COMPREHENSIVE PLAN
6.1: The Dynamic Systems Approach to Comprehensive Planning
6.2: Anticipatory and Participatory Planning

READINGS:
Text - pp. 241-259

WEEK 7: THE LAND USE PLAN
7.1 Land Use Survey and Map
7.2 Land Use Demand Analysis and Plan

READINGS:
Text - pp. 261-284
READINGS:

WEEK 8: TRANSPORTATION PLANNING
8.1 Multi-modal Transportation Systems
8.2 Traffic and Parking

READINGS:
Text - pp. 285-333
Reserve book: The Practice of Local Government Planning -
Chapter 6: "Transportation Planning" by Sandra Rosenbloom.

WEEK 9: MID-TERM
9.1 FALL BREAK
9.2 MID-TERM EXAMINATION

WEEK 10: HOUSING
10.1 Housing Programs and Requirements
10.2 Affordable Housing Issues

READINGS
Text - pp. 334-340
WEEK 11: ECONOMIC DEVELOPMENT PLANNING
11.1 Retail and Services Development
11.2 Manufacturing Development

READINGS:
Text - pp. 341-363

WEEK 12: SOCIAL PLANNING
12.1 Public Services
12.2 Institutions and Facilities

READINGS:
Text - pp. 365-370

WEEK 13: ENVIRONMENTAL PLANNING
13.1 Constraints and Capability
13.2 Conservation and Management

READINGS:
Text - pp. 371-407

WEEK 14: PLANNING IMPLEMENTATION
14.1 Zoning and Subdivision
14.2 Thanksgiving Holiday

READINGS:
Text - pp. 411-490
VIDEO:
"Seaside"

WEEK 15: COMMUNITY DEVELOPMENT
15.1 Community Regeneration
15.2 Unified Community Development and Planning

READINGS:
Text - pp. 493-559
VIDEO:
"Capital City Focus: Carson City Strategic Planning"
WEEK 16: SUSTAINABLE DEVELOPMENT

16.1 The New Urbanism
16.2 Indicators of Sustainability

READINGS:
Text - pp. 560 - 616
Handouts

VIDEO:
"Ecological Design: Inventing the Future"

NOTE: Graduate Students Term Papers Are Due

WEEK 17: FINAL EXAMINATION
BOOK REVIEW LIST

Dr. Luther

- Ebenezer Howard - Garden Cities of To-Morrow.
- Helen and Scott Nearing - Living the Good Life: How to Live Sanely and Simply in a Troubled World.
- Jane Jacobs - The Death and Life of Great American Cities.
- Paul and Percival Goodman - Communitas: Means of Livelihood and Ways of Life.
- Edward C. Banfield - The Unheavenly City.
- Robert L. Heilbroner - The Future as History: The Historic Currents of Our Time and the Direction in Which They are Taking America.
- Edward Abbey - The Monkey Wrench Gang.
- Anne Matthews - Where the Buffalo Roam: The Storm Over the Revolutionary Plan to Restore America's Great Plains.
- John Friedmann - Retracking America: A Theory of Transactive Planning.
- Peter Katz - The New Urbanism: Toward an Architecture of Community.
- Edward Bellamy - Looking Backward.
- Rachel Carson - Silent Spring.
- James Howard Kunstler - The Geography of Nowhere: The Rise and Decline of America's Man-Made Landscape.
- Christopher Alexander, et al. - A Pattern Language.
- Wendall Berry - The Unsettling of America.
- Peter Calthorpe and Sim van der Ryn - Sustainable Communities.
- Tony Hiss - The Experience of Place.
- Dayton Duncan - Miles From Nowhere: Tales from America's Contemporary Frontier.
- John McPhee - In Suspect Terrain.
- David Lamb - A Sense of Place: Listening to Americans.
• Rebecca Solnit - *Savage Dreams: A Journey into the Hidden Wars of the American West.*
• Sim van der Ryn and Stuart Cowan - *Ecological Design.*
• Ian L. McHarg - *Design with Nature.*
• Peter Calthorpe - *The Next American Metropolis: Ecology, Community and the American Dream.*
• Andres Duany and Elizabeth Plater-Zyberk - *Towns and Town-Making Principles.*
• Daniel Kemmis - *Community and the Politics of Place.*
• Aldo Leopold - *A Sand County Almanac.*
• John Tilman Lyle - *Regenerative Design for Sustainable Development.*
• Kirkpatrick Sale - *Human Scale.*
• John McPhee - *Coming into the Country.*
• Randall Arendt - *Rural By Design.*
• Joel Garreau - *Edge City: Life on the Frontier.*
• David Sucher - *City Comforts: How to Build an Urban Village.*
• Herbert Girardet - *The GAIA Atlas of Cities: New Directions for Sustainable Urban Living.*
• Serge Chermayeff and Christopher Alexander - *Community and Privacy: Toward a New Architecture of Humanism.*
• Paolo Soleri - *Archology: The City in the Image of Man.*
• Robert Goodman - *After the Planners.*
• Robert Fishman - *Bourgeois Utopias: The Rise and Fall of Suburbia.*
• John R. Stilgoe - *Borderland - Origins of the American Suburb.*
• Farallones Institute - *The Integral Urban House: Self-Reliant Living in the City.*
• Richard Hedman and Andrew Jaszewski - *Fundamentals of Urban Design.*
• David Wann - *Deep Design: Pathways to a Livable Future.*
• Ken Yeang - *Designing with Nature: The Ecological Basis for Architectural Design.*
• Michael N. Corbett - *A Better Place to Live: New Designs for Tomorrow's Communities.*