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# COUNTY LAND USE INVENTORY GUIDEBOOK

REVISED EDITION

LAND USE ACT  
CHAPTER 1245, 1982 IOWA ACTS

INTER-AGENCY RESOURCE COUNCIL  
JANUARY, 1983

GUIDEBOOK SUBCOMMITTEE:

IOWA DEPARTMENT OF SOIL CONSERVATION  
IOWA GEOLOGICAL SURVEY  
IOWA DEPARTMENT OF AGRICULTURE  
IOWA DEPARTMENT OF TRANSPORTATION

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# COUNTY LAND USE INVENTORY GUIDEBOOK

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# COUNTY LAND USE INVENTORY GUIDEBOOK

## INTRODUCTION

The 69th General Assembly of Iowa passed Senate File 2218, the Land Use Bill. Upon signature by Governor Robert D. Ray, the bill became law. The purpose of this act is to provide for the orderly use and/or preservation of Iowa land and related natural resources. Among the provisions of the act was the establishment of County Land Preservation and Use Commissions in each Iowa county. Included among the responsibilities of each county commission is the completion of a county land use inventory by January 1, 1984. The purpose of this guidebook is to provide county commissions with assistance in meeting land use inventory requirements.

The procedures provided in this guidebook are intended to outline a methodical and direct approach that, if followed, will enable county commissions to complete the required inventory within the prescribed time period. If followed, they will also provide a uniform base of county inventories from which meaningful statewide results can be aggregated by the Inter-Agency Resource Council, another requirement of the act.

To facilitate completion of the inventory, county land use commissions are encouraged to draw upon many forms of assistance that may already exist at the county or state level. Among these are county planning boards and the Iowa Areawide Planning Organizations. In addition, a workshop is being developed by the Inter-Agency Resource Council and the Iowa Cooperative Extension Service for regional presentation early in 1983. The workshop will provide training and assistance in the use of this guidebook to complete the county land use inventories.

NOTE: Additional copies of this guidebook can be obtained from the Department of Soil Conservation, Wallace State Office Building, Des Moines, IA 50319, (515) 281-5851.

## MATERIALS

Materials to prepare the land use inventory should be collected as quickly as possible to insure that resource information is available when needed. With this taken care of, the efforts to complete the inventory will not be held up for lack of needed information or materials.

### Base Maps and Photos

The base map for the inventory process will be recent aerial photo maps. Aerial photos (copied prints) of the county are available from the county Agricultural Stabilization and Conservation Service (ASCS) office. These photos are available at the scale of 8"=1 mile (one sheet per section) and will be used to work on during completion of the inventory. These will remain with the county following inventory completion and will be a valuable land use resource tool for the county. One set of photos is needed, but an extra copy might be useful in case of mistakes.

The best data source of 1960 land use must be determined and access for its use must be obtained. The county ASCS office may have old contact prints of the county. These prints may also be found at libraries of Iowa State University or the University of Iowa. If 1960 data is not available, choose the closest date to 1960 for which adequate data exists. It is important to begin locating the best 1960 data source early, to be ready for that part of the inventory later.

A county might wish to prepare a county summary map for presentation and use at the local level. A good base map to use for this purpose is the Iowa Department of Transportation (DOT) county road map mylar at the 1"=1 mile scale. Mylar (plastic) should be used to allow easy printing and duplicating of the mapped inventory data. These mylars are available from the Department of Transportation (Table 1).

### Supplies

A supply of acetate (clear plastic) overlay material should be obtained. It will be used for comparing land use in 1960 to current land use. Enough should be obtained to cover each section photo sheet obtained from ASCS.

Colored pencils will be needed to mark land uses on the ASCS photos. Colored marking pens will be used on the transparency overlays.

### Inventory Resources

The following informational resources should be obtained from state and local agencies as data that will be included in the inventory:

## Information

## Source

Schools	Area Education Agency or State Department of Public Instruction
Public Parks and Recreation Areas	Iowa Conservation Commission
Historical Sites	State Historical Department
Archaeological Sites	State Archaeologist
Government Buildings	County Board of Supervisors
Active and Abandoned Mines	Department of Soil Conservation

In addition to these sources, the commission should contact various federal, state, and county agencies with offices in the county to determine additional resources that can be used to complete the inventory. These offices include, but are not limited to, the county assessor, soil conservation district office, county ASCS office, regional planning commission, county Extension office, and others.

## INVENTORY PREPARATION

### Incorporated Areas

Obtain the 1960 boundaries of incorporated towns and cities from the county assessor and record these on the ASCS photo sheets. Use a dashed line for 1960 boundaries and an unbroken line for 1982 boundaries. Also record the name of each town just inside its boundary.

### Public Facilities

Using data obtained from state and county sources, locate all public facilities outside of 1960 incorporated areas on the ASCS photo sheets. It is necessary to use the 1960 city boundaries to have adequate information for analyzing conversions since 1960. A definition and list of examples of public facilities for the purpose of this inventory is included as Table 2. The first column indicates the seven general 'Inventory Categories' required for this land use inventory. The second column indicates 'Optional Detailed Categories' that can be used by counties to further differentiate land use categories if it is in their interest. The third column indicates the appropriate 'Color' for color coding on the ASCS photos (orange in the case of public facilities).

It is important to note that information provided by the state agencies will not account for all public facilities in the county. Carefully check the category list of Table 2 and supplement the state information with county sources as well.

## **Mineral Extraction**

Using data obtained from the Department of Soil Conservation, locate all active mining operations and all inactive, unreclaimed abandoned mine sites outside of 1960 incorporated boundaries. Identify and map each site on the ASCS photos with the appropriate color (dark blue).

At this point, state agency information available to assist counties will have been compiled onto the ASCS photo worksheets with additional information on public facilities gained from county sources.

## **Commercial, Industrial, Residential, Transportation, and Private Open Space**

Identify all remaining non-agricultural uses for land outside of the 1960 incorporated boundaries. Using the detail of the ASCS aerial photos, differentiate between commercial, industrial, residential, transportation, and private open spaces. The boundaries of these land uses should be traced onto the photos and color coded. Refer to the Inventory Categories definitions in Table 2 to be sure proper categories and colors are used.

If the site does not seem to fit any of the categories, consider its existing land use. For example, a wooded area that has been subdivided for large housing acreages would be categorized as 'residential' for the purpose of this inventory because its existing use is residential housing.

Field check the sites to insure accuracy. It is not always possible to differentiate between commercial and industrial sites on the ASCS photos, and it may also help delineate boundaries in some cases.

## **Agricultural Land**

The remaining land on the ASCS photos is agricultural land within the definition of the Land Use Inventory Categories of Table 2. For the purpose of this inventory, the land must be differentiated between 'high quality farmland' and 'low quality farmland'.

It is more than likely that this differentiation has been done already at the county level. Information may be available under the following or other types of comparisons:



## High Quality Farmland

Important Farmland  
Prime Farmland  
USDA Land Capability Classes I & II  
High Corn Suitability Rating

## Low Quality Farmland

Lesser or Unimportant Farmland  
Non-Prime Farmland  
USDA Land Capability Classes III & VII  
Low Corn Suitability Rating

The District Conservationists for the USDA Soil Conservation Service will be aware of what information exists at the county level, or will be able to provide guidance on how a land quality comparison can be made if information does not exist.

Record the differentiated agricultural quality onto the ASCS photo worksheets (coloring high quality brown and leaving low quality uncolored). Somewhere on the data submitted to the state, indicate which method was used for differentiating agricultural land quality.

This will complete the ASCS photo work. At this point, they will show the incorporation boundaries for 1960 and 1982, all non-agricultural land uses outside the 1960 incorporation boundary, and all agricultural land differentiated between 'high quality farmland' and 'low quality farmland'.

## LAND USE DATA SUMMARY

### Index of Land Uses

Each separate land use area should be described in a county index of land uses. An example of such an index is attached as Table 3. It describes each site, labels the land use category (refer to seven general categories of Table 2), provides a general partial section location (eg. NW  $\frac{1}{4}$  or SE  $\frac{1}{4}$ ), and indicates the number of acres it contains. Each ASCS photo (one section) should have its own index sheet (Table 3). The completion of Table 3 for each section will make Table 4 much easier to complete. Note: A township in this guidebook is defined as a congressional township, one that contains 36 sections of land and described by a township and a range number.

### Township and County Summaries

Utilizing Table 4, record for each section in a township, the number of acres of each land use as it existed in 1982. Be careful at this time to use the 1982 boundaries of incorporation. The other boundaries will be used later.

On Table 4 report the number of acres per section and the number of acres of each land use per section. Total the data to determine the number of acres per township and the number of acres for each land use in that township. Divide the acreage totals for each land use by the township total to determine percentage of each land use in each township. When finished, each township should have its own completed form.

In this part of the inventory, *three* points are important and should be considered:

1. Not all sections are 640 acres and should not be assumed as such. The county assessor can provide acreage data for sections.
2. ASCS photos are not necessarily to scale. For that reason, it may not be accurate to assume 8"=5280 ft., or 1"=660 ft.
3. Acreages may be measured by a number of methods. Perhaps the simplest is to use a dot grid system. To do so, lay an acetate dot grid over the section, count the number of dots per section, and divide the number of acres in the section by the number of dots. The resulting figure is the number of acres represented by each dot. Then for each land use in the section, count the number of dots for that land use and multiply that by the figure of acres per dot. The result will be the number of acres of each land use in the section. Realize that the tighter the dot grid, the more accurate the measure. For this inventory, a ½ inch grid is adequate for 8"=1 mile photos.

When all township report forms are complete, transfer the township data to the county report form (Table 5). Total the township data and compute county percentages.

This will complete the current (1982) land use requirement for unincorporated areas.

## **COMPARISON OF 1960 LAND USE TO PRESENT**

At this point, the county land use commission should have obtained access to the best available 1960 data on land use. Aerial ASCS photos from approximately that time are the recommended data and their use shall be described here.

Overlay the 1960 photos with acetate and index the acetate with reference points such as road intersections to allow it to overlay the 1982 photo later. On the acetate (with black marking pens) outline agricultural areas only from the 1960 photos.

Then, overlay the acetate on the 1982 ASCS photo with the current land use. You will be able to clearly determine all agricultural land that has been converted to non-agricultural use since 1960. Record these changed areas on the acetate by the following six categories: (1) residential, (2) commercial, (3) industrial, (4) public facilities, (5) private open space, and (6) transportation. Colored marking pens can be used to code the changed areas using the same color codes given in Table 2.

Remove the acetate from the photo and place it over a blank background. Determine the acreage for each of the six conversions as previously described and record them by section on the Township Land Use Conversion form (Table 6). Total the township data and transfer it to the County Land Use Conversion form (Table 7).

## AGRICULTURAL LAND WITHIN INCORPORATED AREAS

Determine the acreage of each incorporated area within the county. For each incorporated area, consult the county assessor to determine the number of acres of land within the incorporated area that are taxed as agricultural land. Record this information on the Agricultural Land Within Incorporated Areas form (Table 8). Use as many copies of the form as necessary to meet the need of the county. Total the data and determine the percentage of incorporated land in the county that is taxed as agricultural land.

## PRESENTING THE FINDINGS

As required by the Land Use Act, prepare a narrative describing the information collected for the inventory. To it, attach the following forms prepared as a part of the inventory, while retaining appropriate copies for county use:

1. Township and county reporting forms of current land use (Tables 4 and 5).
2. Township and county land use conversion report forms (Tables 6 and 7).
3. Agricultural land within incorporated areas form (Table 8).

These reports shall be transmitted to the Department of Soil Conservation, as agent of the Inter-Agency Resource Council, at the following address:

James B. Gulliford, Director  
Iowa Department of Soil Conservation  
Wallace State Office Building  
Des Moines, IA 50319

The land use index forms (Table 3), as well as the ASCS photos which contain all original land use identification work, should be retained at the county level. The worksheets in particular will provide useful base data for continued county analysis and planning work.

As was suggested earlier in this guidebook, a county may find it beneficial or necessary to prepare one county-wide map of land uses for local meetings and presentations. The Department of Transportation map, referred to on page 2, provides a suitable base map for this purpose. Details from the ASCS photo sheets can be transferred to the DOT map and graphically highlighted with colors or other shading techniques.

The Land Use Act requires that each county shall provide the inventory data in both narrative and map form and shall provide a cartographic display of the 1960-1982 land use changes. While this does require each county to prepare detailed maps and to have them available for inspection, the Inter-Agency Resource Council is not requesting that maps be submitted to the state office.

The completed ASCS photo maps and the land use conversion overlays recommended by this guidebook should not only aid in developing the required land use information but can also serve as the maps and cartographic display called for in the law.

It is the intention of the Inter-Agency Resource Council to meet its requirement for developing state-wide summary maps and narratives by utilizing the data submitted by each county on the forms provided in this guidebook. For this reason, it is crucial that each county provide a uniform summary of land use data.

## Table 1. Agencies to Assist County Land Use Commissions

Department of Agriculture  
Attn: Thatcher Johnson  
Wallace State Office Building  
Des Moines, IA 50319  
(515) 281-5323

Office for Planning and Programming  
Attn: Rajesh C. Jain  
523 E. 12th Street  
Des Moines, IA 50319  
(515) 281-3923

Department of Soil Conservation  
Attn: James B. Gulliford  
Wallace State Office Building  
Des Moines, IA 50319  
(515) 281-5851

Iowa Conservation Commission  
Attn: Randall C. Jensen  
Wallace State Office Building  
Des Moines, IA 50319  
(515) 281-8673

Department of Environmental Quality  
Attn: J. Edward Brown or Allan Stokes  
Wallace State Office Building  
Des Moines, IA 50319  
(515) 281-8690

Iowa Natural Resources Council  
Attn: James R. Webb  
Wallace State Office Building  
Des Moines, IA 50319  
(515) 281-5572

Iowa Geological Survey  
Attn: Bernard Hoyer  
123 N. Capitol Street  
Iowa City, IA 52242  
(319) 338-1173

Iowa Cooperative Extension Service  
Attn: Ronald C. Powers  
107 Curtiss Hall, ISU  
Ames, IA 50011  
(515) 294-8397

Iowa Development Commission  
Attn: Douglas Getter  
250 Jewett Building, 914 Grand Ave.  
Des Moines, IA 50319  
(515) 281-3140

State Historical Department  
Attn: Adrian D. Anderson  
Historical Building  
Des Moines, IA 50319  
(515) 281-5111

State Archaeologist  
Attn: Duane C. Anderson  
Eastlawn Building  
Iowa City, IA 52242  
(319) 353-5175

Department of Transportation  
Attn: Rex Wiant  
800 Lincoln Way  
Ames, IA 50010  
(515) 239-1645



**Table 2. Land Use Inventory Categories**

Inventory Categories (required)	Optional Detailed Categories	Color
<p>1. <u>General Agricultural:</u>                      -land used for husbandry of plants &amp; animals &amp; their products, &amp; for associated facilities                      -cultivated land, pasture, fallow land, nurseries, Christmas tree farms, pastured timber, orchards, land that is unfarmed but is in the federal set aside program, farmsteads including the farmhouse, accessory buildings, &amp; attributable area</p>	<p>1. Farmstead &amp; Attributable Area                      2. Cultivated Land                      3. Pasture Land                      4. Commercial Timber Land                      5. Specialized Uses (orchards, horticulture &amp; landscaping production, feedlots)</p>	<p>high quality ag - brown                      low quality ag - uncolored</p>
<p>2. <u>Public Facilities:</u>                      -land used for public &amp; private facilities for education, health, religious activities, government facilities, recreation, &amp; conservation                      -land publicly owned &amp; maintained &amp; used for parks, recreation, preserves, schools, government buildings, churches, cemeteries, county homes, hospitals, sewage treatment facilities, landfill, golf courses, state &amp; county road maintenance buildings, municipal parking lots, military facilities, boy scout &amp; girl scout camps &amp; other institutions, &amp; their associated land uses</p>	<p>1. Recreation &amp; Nature Preserves                      2. Educational Facilities                      3. Government Buildings (administration)                      4. Churches &amp; Cemeteries                      5. Health Care Facilities                      6. Other Government Facilities (sewage treatment, landfill, etc.)                      7. Campgrounds                      8. Cultural Facilities (museums, art galleries)</p>	<p>orange</p>
<p>3. <u>Private Open Spaces:</u>                      -land owned privately &amp; may include woodlands not used for agriculture, wetlands, water bodies, native prairie, &amp; wildlife habitat                      -land not being used for agricultural, urban or public, &amp; semi-public uses</p>	<p>1. Water Bodies                      2. Deciduous Woodlands                      3. Coniferous Woodlands                      4. Wetlands &amp; Marshes                      5. Other Natural Areas</p>	<p>green/ blue</p>
<p>4. <u>Commercial Land Use:</u>                      -land used for retail sales or trade of goods and/or services including enclosed arenas, lodging, &amp; motels or any type of office facility                      -land used for sale &amp; display of retail goods &amp; office services &amp; their associated land uses such as parking lots--such uses could include service stations, restaurants, banks, sales</p>	<p>1. Professional, Sales, &amp; Financial Offices                      2. Retail Services &amp; Display                      3. Entertainment Facilities (assembly halls, clubs, amusement parks)</p>	<p>red</p>

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offices, auto/truck sales, grocery stores, professional offices (dentists, doctors, lawyers), private recreational facilities (except golf courses), entertainment facilities, & private travel or tent campgrounds

5. Industrial Land Use:

-land used for extraction or mining of raw materials, manufacture of goods, warehousing & wholesale trade, bulk storage, & their associated land uses--such uses include feed & grain milling & storage, ammonia & gas storage facilities, cement & asphalt plants, sand & gravel pits, limestone quarries & mining operations, storage areas of products that have been produced & all attendance facilities in areas that go with those uses

1. Warehousing
2. Mining & Quarries
3. Bulk Storage Areas
4. Manufacturing Plants
5. Meat Packing

dark  
blue

6. Residential Land Use:

-land used for non-farm residential uses that are permanent or seasonal & all their associated areas including accessory buildings on lots--such uses include single-family residential homes, duplexes, multi-family residential buildings, mobile homes & mobile home parks

1. High Density Residential Areas (more than 3 units/acre)
2. Low Density Residential Areas
3. Mobile Homes
4. Group Quarters
5. Seasonal Cottages

yellow

7. Transportation:

-land uses relating to transportation, communication facilities, & utilities--such uses include road & railroad right-of-way, landing strips & airports, port facilities, microwave & telephone transmission towers, radio & television broadcast towers, satellite communication facilities, navigational facilities, such as radar, power plants, transformer & pipeline stations

1. Water Related Transportation Facilities
2. Air Related Facilities
3. Rail Facilities
4. Highway Facilities
5. Power Generating Plants
6. Pipeline Terminals & Stations
7. Port Facilities

light  
blue







## Table 4. Township Land Use Report Form

County \_\_\_\_\_

Township T \_\_\_\_\_ R \_\_\_\_\_

Section	Acres per Section	Incorporated	Agriculture		Public Facilities	Private Open Spaces	Commercial	Industrial	Residential	Transportation
			High Quality	Low Quality						
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
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26										
27										
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29										
30										
31										
32										
33										
34										
35										
36										
Township Total										
Township Percent										









## Table 6. Township Land Use Conversion Form

County \_\_\_\_\_

Township T \_\_\_\_\_ R \_\_\_\_\_

Section	Agricultural Land Transferred To					
	Public Facilities	Private Open Spaces	Commercial	Industrial	Residential	Transportation
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
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28						
29						
30						
31						
32						
33						
34						
35						
36						
Township Total						



## Table 7. County Land Use Conversion Form

County \_\_\_\_\_

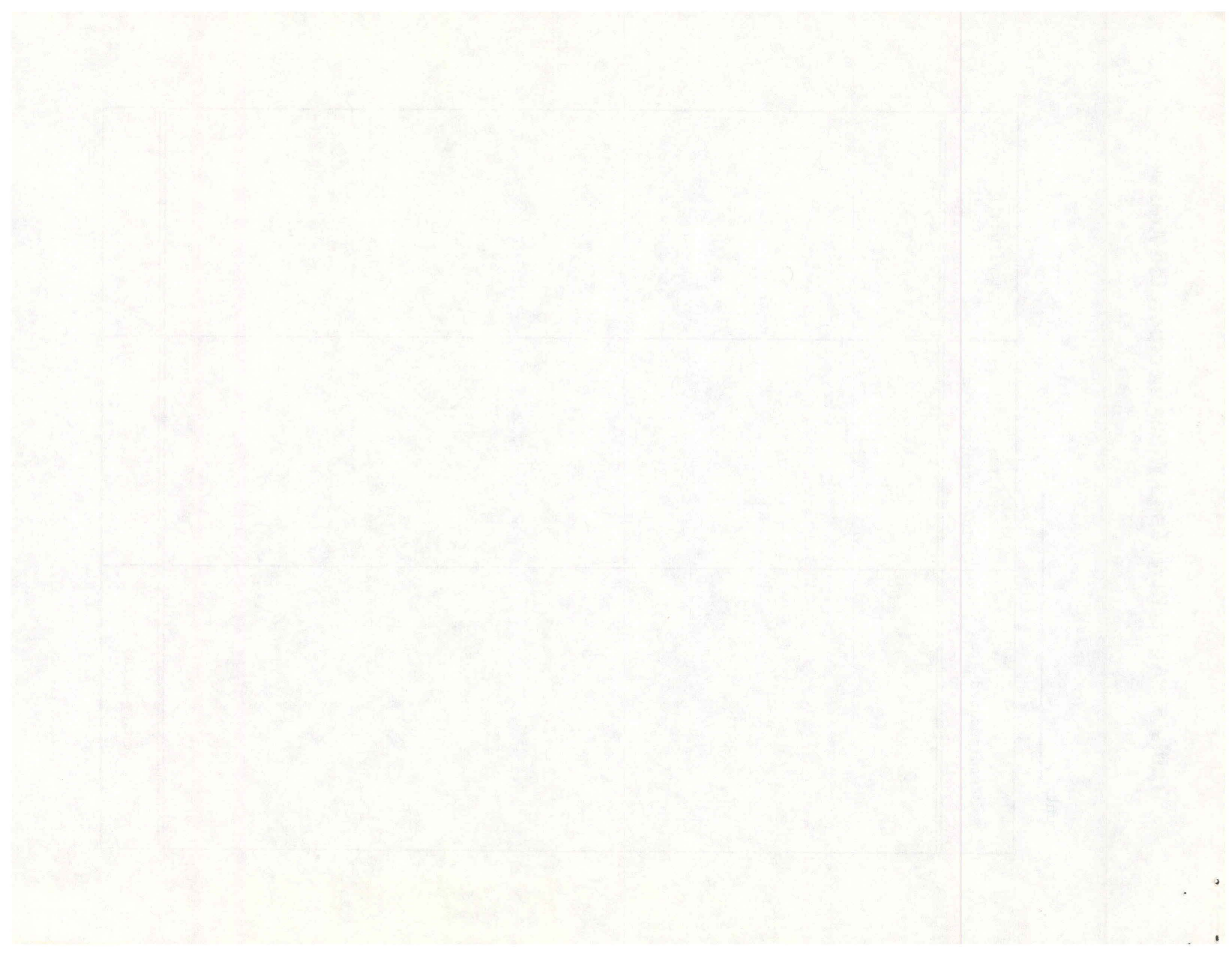
Township T, R	Agricultural Land Transferred To					
	Public Facilities	Private Open Spaces	Commercial	Industrial	Residential	Transportation
County Total						

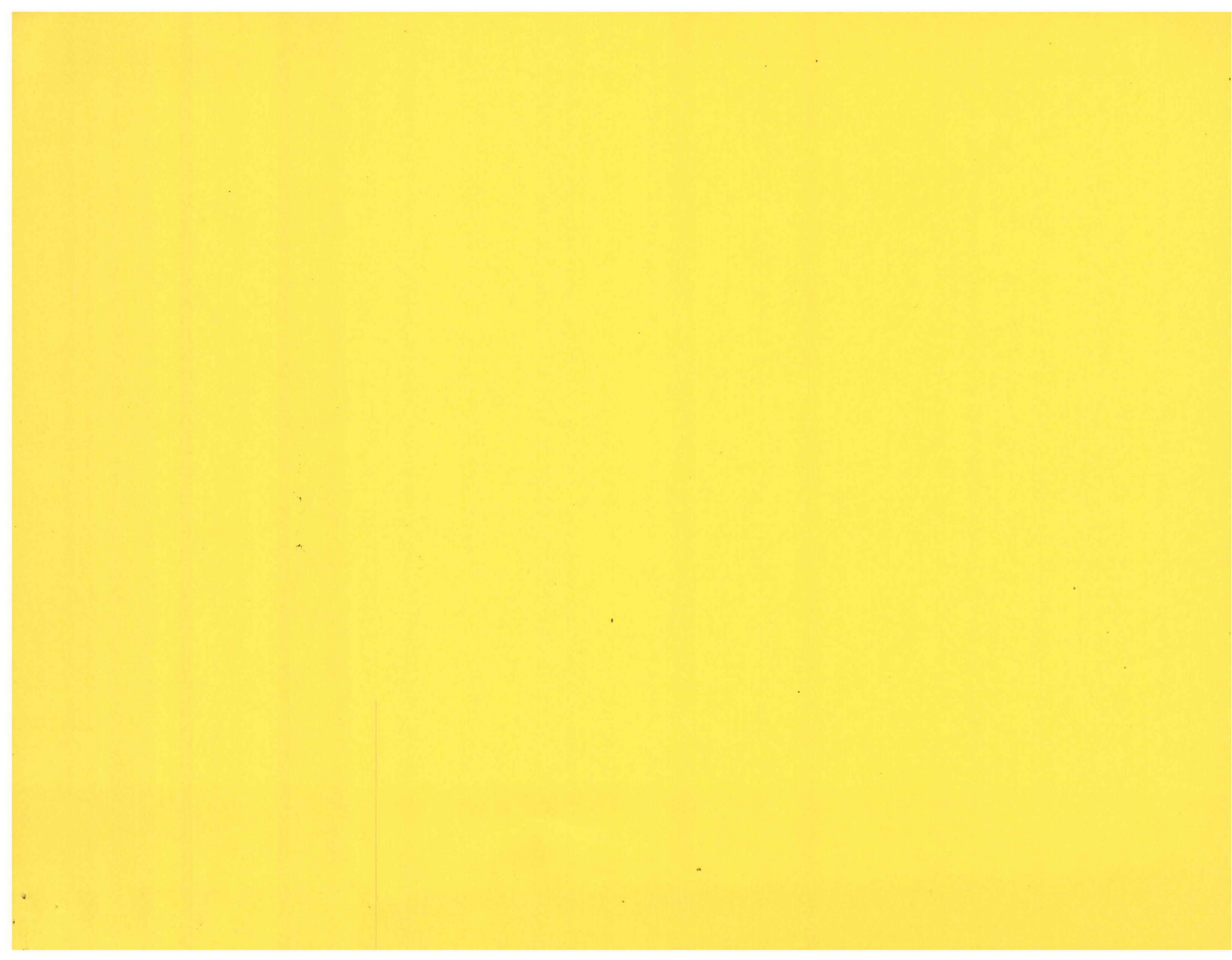


**Table 8. Agricultural Land Within Incorporated Areas**

County \_\_\_\_\_

Incorporated Area	Acres In Incorporated Area	Agriculturally-Taxed Acres In Incorporated Area
County Total		





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