LAND USE AND TRANSPORTATION IN IOWA: 1979

By Alice Seun-Ho Cho
Director's Staff
Iowa DOT
Ames, Iowa 50010

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EXECUTIVE SUMMARY

Land is the medium for all life on earth. Once people considered land as an unlimited resource. Today we can no longer subscribe to that view. We face the shortage of various resources including energy and raw materials while experiencing a decay of our environment.

Iowa, the leading agricultural producer in the United States, uses 92.2% of its land for agricultural production. Transportation plays a vital role in movement of agribusiness commodities and service as well as the conveyance of Iowa's people. Transportation occupies the next largest amount of land. Transportation of one form or another uses 3.5% of Iowa's land.

The importance of understanding land use is slowly alerting many Iowa cities and towns to organize a planning department. It is also causing public officials to be more farsighted with policies concerning zoning and land development.

In order to plan, officials need accurate and updated data to help them in their decision-making. Unfortunately, the data historically has been both inaccurate and outdated. This report uses the best available data to inventory Iowa's current land use.

Highlights

Following are highlights of this report:

- Since 1970:

  Cropland is up 3,342,700 acres. Increased land prices encourage the conversion of woodlands and pasture into cropland. Land available for agricultural use has decreased by 328,148 acres.

- During the 1970's an interesting trend has developed concerning land under agricultural use in incorporated and unincorporated areas. Contrary to popular thought, land in agricultural use increased by 8% (34,190 acres) in incorporated areas while decreasing by 1% (362,338 acres) in unincorporated areas. Although there is no data to support a conclusive reason, it is felt that this trend is due to the inability of development to make use of the significant amount of land annexed by municipalities.

- Increased population shift to metropolitan areas has been 4% since 1970, but is much less than the 10.3% increase experienced during 1960 to 1970. Non-metro population areas have experienced slight growth since 1970 of 0.4% which sharply contrasts with the 1.6% decrease in the decade earlier.

- Suburban towns of 1,000-2,500 population near big cities are the fastest growing towns in Iowa. Meanwhile, the larger cities usually experience a decrease in their population.

- There has been a 7.6% increase in total urban land use since 1970 and a 30.0% increase in urban transportation land use in Iowa. The reason for this big increase in urban transportation is due to the construction of wider roads, such as four-lane divided streets, in the city since 1970.

- Due to increased roadway width, remaining right of ways (ROW) acreage decreased by 6.0% and shoulder acreage increased by 71.0% since 1970. During the same period, road surface acreage increased by 22.0%.

- During 1970-1979, 13,741 acres of railroad ROW have been abandoned in Iowa, of which 9,566 acreas have been sold. Of the land sold 68% was to adjacent landowners; public agencies purchased 18% for recreational purposes and 2% for transportation. Most of the adjacent landowners convert the ROW into agricultural use.

- Annexation by municipalities totaled 73,403 acres during the years 1970 to 1977. However, 91% of the annexation took place between 1970 and 1975.

- 1.5% of Iowa land is used for recreation. There has been a 4.0% increase in recreational land use since 1970.

1978-1979 LAND USE IN IOWA

*Agricultural Use 33,180,773 Acres		Non-Agricultural Use 2,621,467 Acres	
opland	25,172,700 A.	Transportation	1,278,343 A.
odland, Pasture and Other	8,008,073 A.	Recreation	552,745
		Residential	296,157
		Water	223,360
		Commercial	74,212
		Mining	59,000
		Industrial	31,115

Table 1

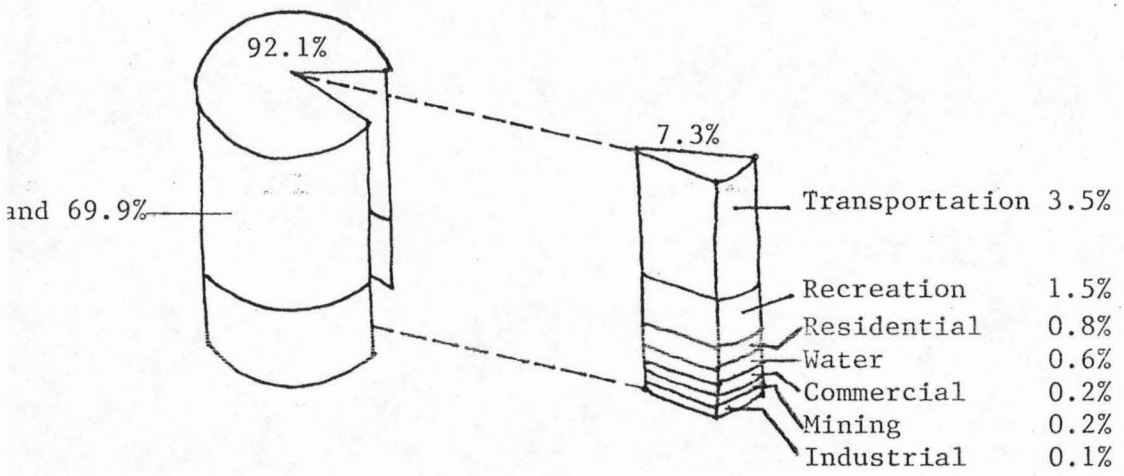


Fig. 1

efinition used by property tax division for tax assessment purpose.

urces: 13, 18, 22, 23 and 28.

AGRICULTURE

Agricultural Land Use 1970-1978

Year	Total Ag. Use (Acres)	Cropland (Acres
1970	33,508,921	21,830,000
1971		22,613,000
1972		22,145,000
1973	33,380,487	24,100,000
1974		24,660,000
1975	33,268,346	24,697,000
1976	33,239,045	24,720,000
1977	33,202,963	25,122,300
1978	33,180,773	25,172,700

Table 2

Available agricultural land acreage removed from production since 1970: -328,148 acres (-1%).

Cropland acreage increase since 1970: +3,342,700 acres (+15%)

Sources: 22 and 23

AGRICULTURAL LAND USE IN
INCORPORATED AND UNINCORPORATED AREAS
1970-1978

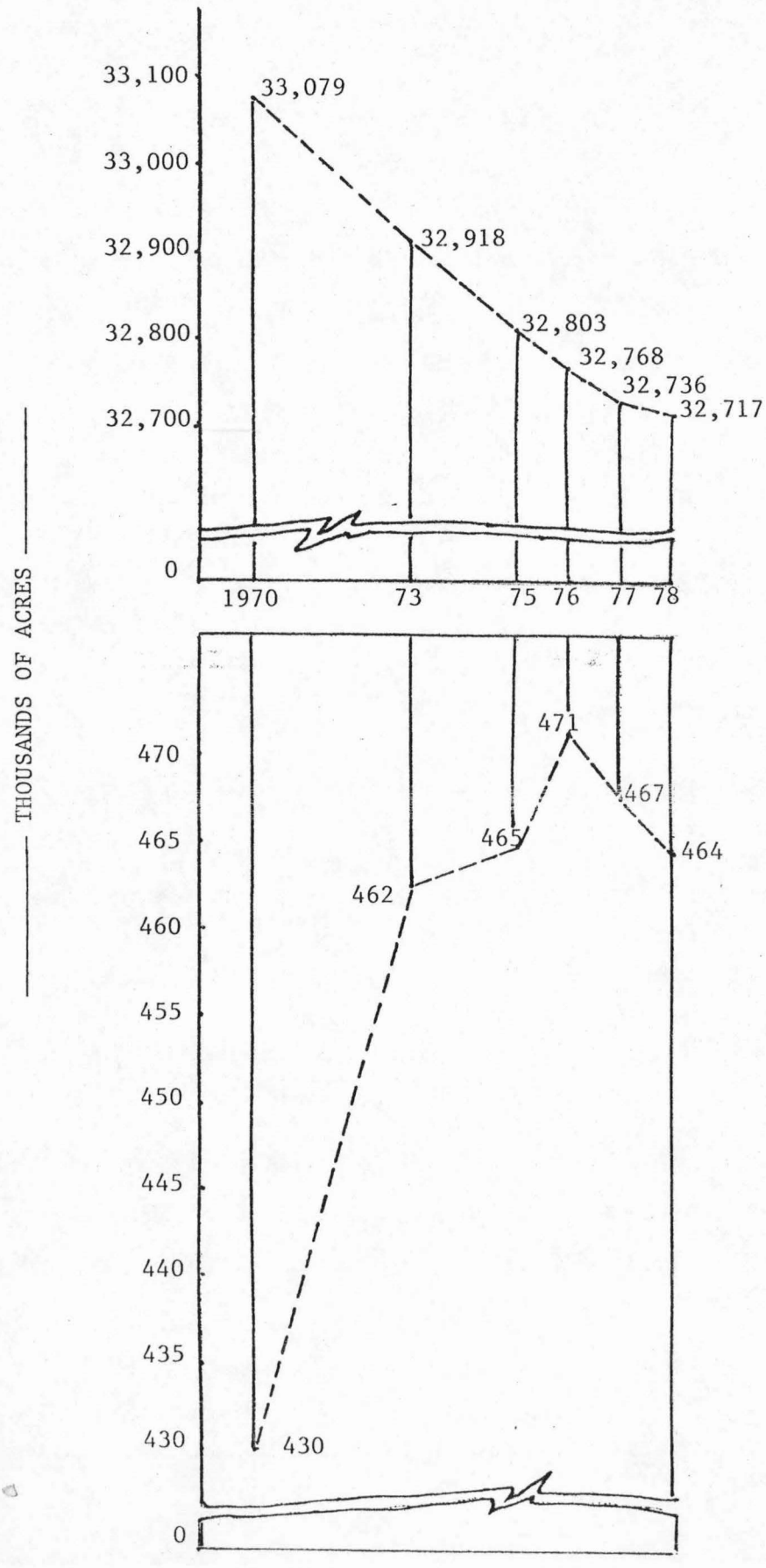


Fig. 2

AVERAGE IOWA FARMLAND VALUES FROM 1900 TO 1978

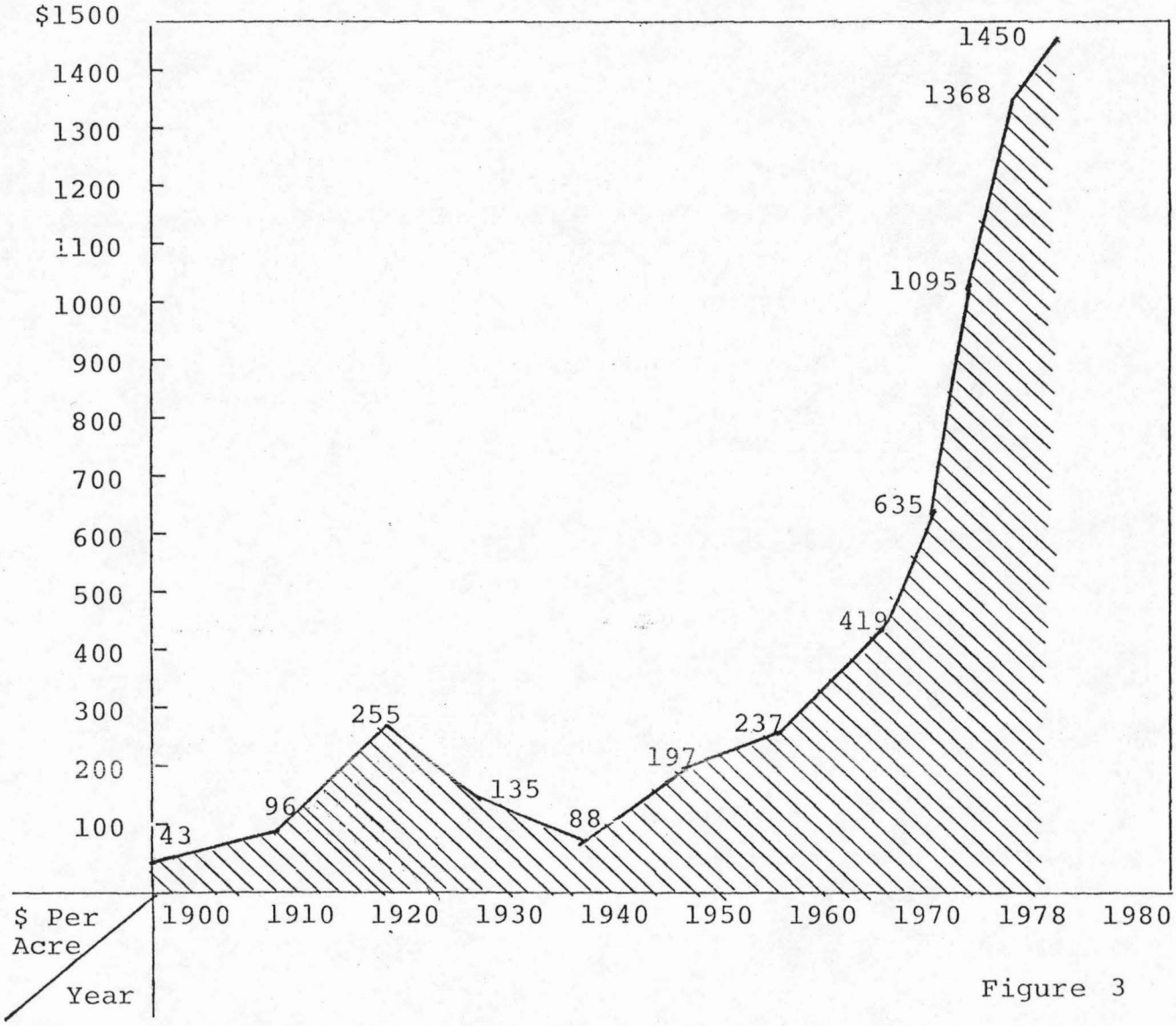


Figure 3

Source: 8

IOWA FARMS: AVERAGE SIZE AND NUMBER 1930-1978

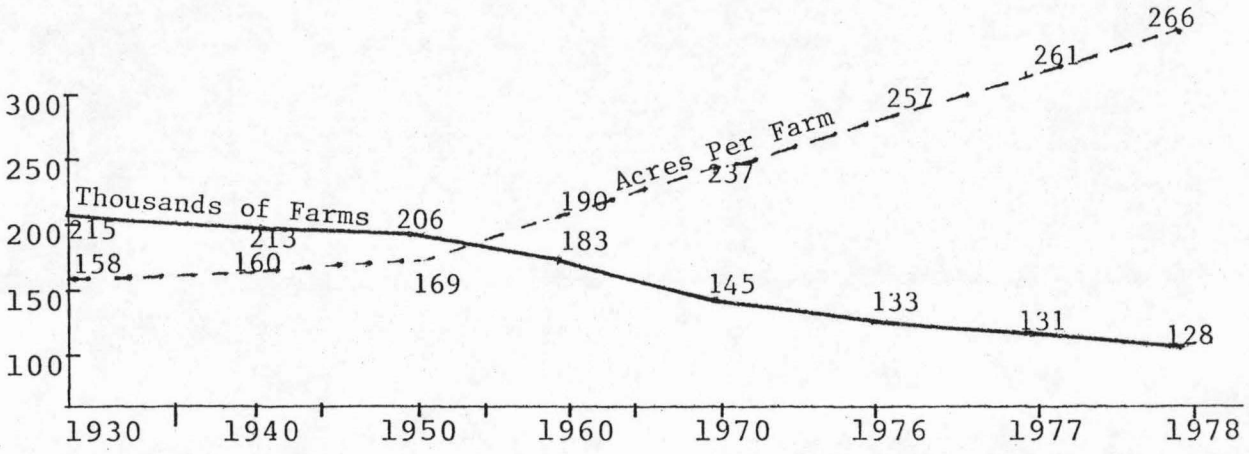


Fig. 4

Source: 15

Facts on Agricultural Land Use:

- Cropland is up 3,342,700 acres since 1970.
- Annual change in land used by agriculture since 1970: -328,148 acres.
- 43% of incorporated areas is agricultural land.
- Prime agricultural land* includes about 68% of total Iowa land (24,364,782 acres).
- The industry-oriented counties have relatively lower percentages of prime agricultural land. The amount of their agricultural land often exceeds the amount of their prime agricultural land, except Black Hawk, Scott and Polk Counties (see Table 3 on page 7.)
- The size of farms has steadily increased about 1.5% per year, while the number of farms has decreased by 1.4% during 1970-1978.

*The definition of prime agricultural land is: Highly productive land which produces relatively more food with less erosion and lower demands for fertilizer, energy and other resources.

The data on prime agricultural land prepared by USDA in 1967 is based on soil types, not on its present land use. Therefore, 68% represents the potential productive farmland. No study has been done which shows how much of the potential prime agricultural land actually is available for the agricultural production and how much of it is covered by urban build-up.

RELATIONSHIP BETWEEN THE PRIME AG LAND AND*
THE AGRICULTURAL LAND IN
PRIMARILY INDUSTRIAL COUNTIES*

Counties With Industrial Force	Prime Ag Land As a % Of Total Area	Agricultural Land As A % of Total Area		
		1976	1977	1978
Black Hawk	87	85	84	84
Cerro Gordo	84	90	90	90
Clinton	68	91	91	91
Des Moines	73	82	82	81
Dubuque	32	89	88	88
Lee	44	87	86	86
Linn	76	85	84	84
Muscatine	74	89	88	88
Polk	86	70	69	69
Pottawattamie	54	90	90	90
Scott	74	84	83	83
Webster	85	92	92	92
Woodbury	40	91	91	90

Table 3

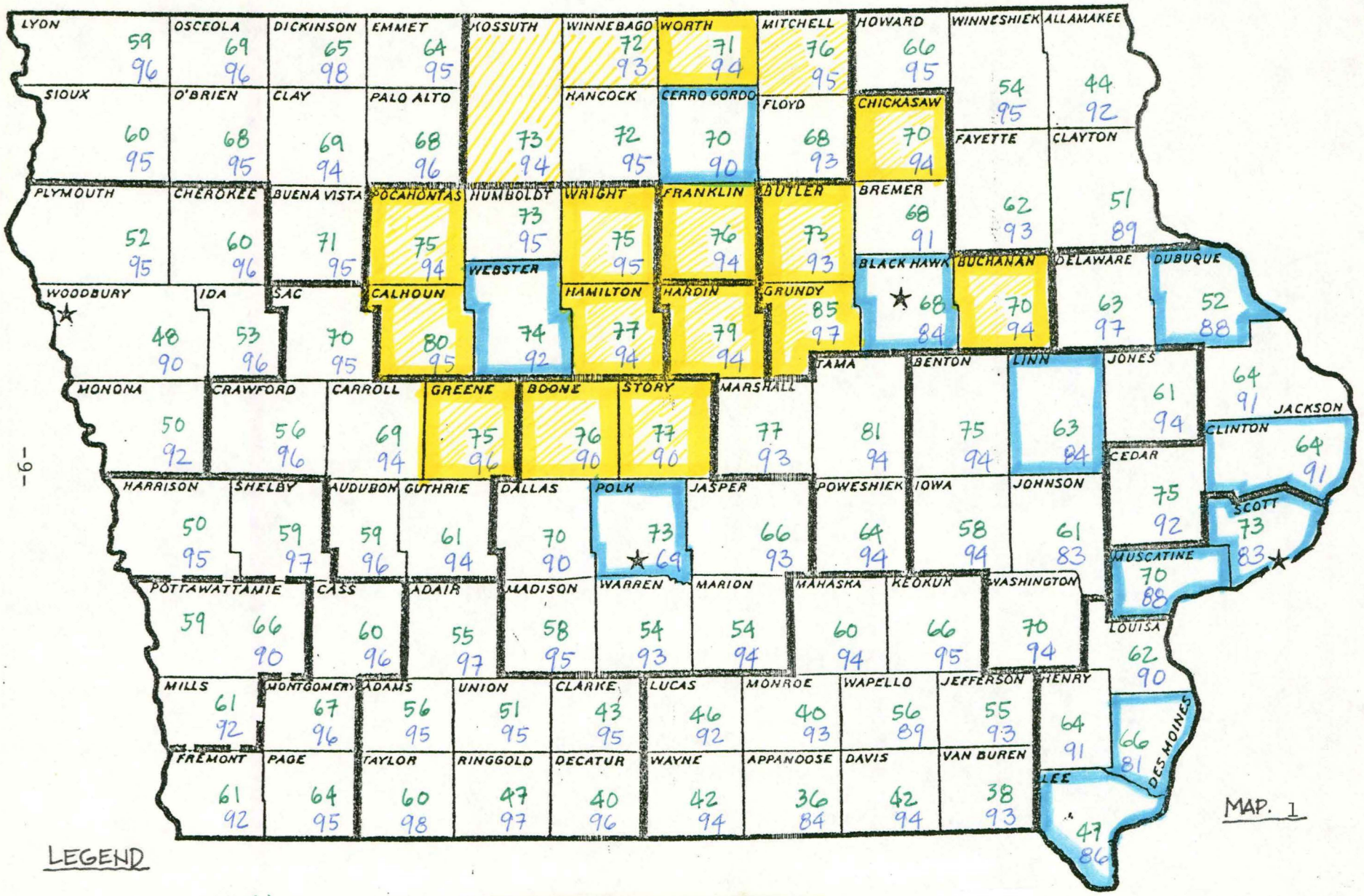
*See definition on page 6.

Sources: 15, 16 and 23

MAJOR FACTORS INFLUENCING THE AGRICULTURAL LAND USE

- Profitability of the farm operation
- Land prices
- Commodity prices
- Interest rates for financing of land acquisition
- Federal and local government policies
- Population movement (urban growth)
- Property tax structures

1970 AVERAGE CORN SUITABILITY RATINGS AND PERCENTAGE OF AGRICULTURAL LAND



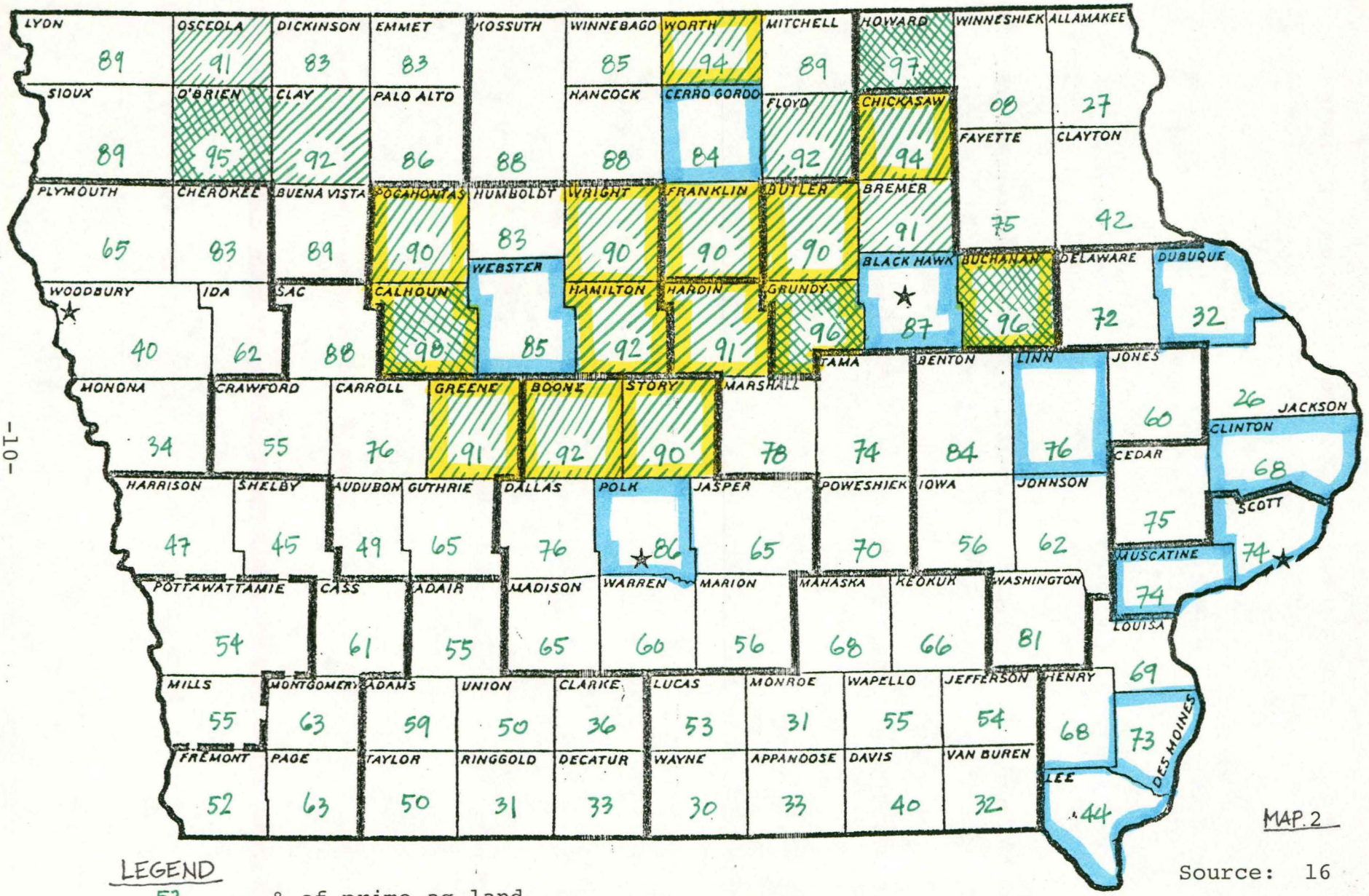
MAP. 1

LEGEND

61
92

- Average corn suitability rating
- % of agricultural land in each county
- Counties that have 70 CSR or higher (CSR of 70 or more is considered high quality soil)
- Primarily agricultural Co. (See definition page)
- Primarily industrial Co. (See definition page)

PERCENTAGE OF PRIME AG. LAND



MAP 2

LEGEND

52 - % of prime ag land
- Primarily industrial Co. (See def. page).
- Primarily agricultural Co. (See def. page).
- 90% or more
- 95% or more

Source: 16

POPULATION

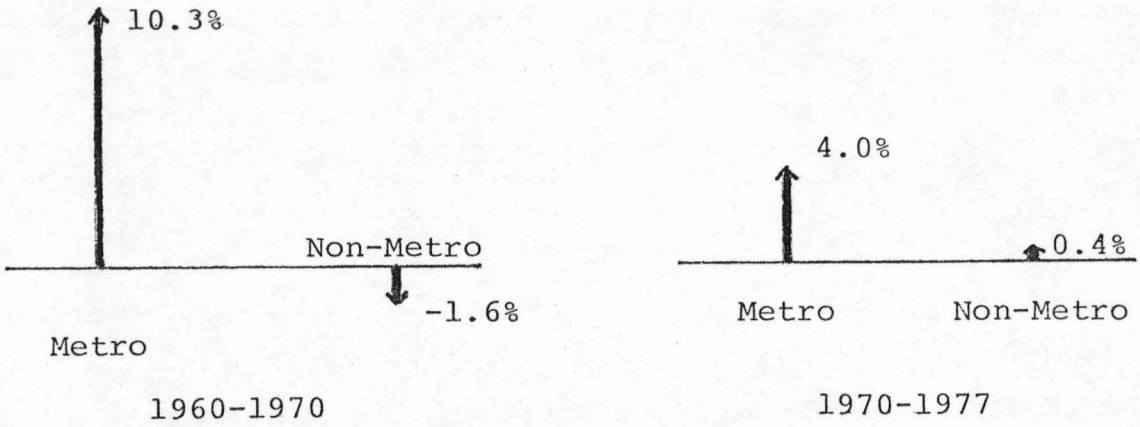


Fig. 5

Year	Metro # Of People	Metro % of Total Population	Non-Metro # Of People	Non-Metro % of Total Population	Total
1960	937,000	34.0	1,822,000	66.0	2,759,000
1970	1,033,000	36.6	1,792,000	63.4	2,825,000
1977	1,080,000	37.4	1,808,000	62.6	2,888,000

Table 5

- Iowa population growth is stable. 0.3% average annual change since 1960.

Sources: 4 and 17

IOWA'S TEN FASTEST GROWING CITIES 1960 - 1970

Rank	Name of the City or Town	Nearest SMSA	Counties	% Increase
1.	Asbury	Dubuque	Dubuque	477.5
2.	Clive	Des Moines	Polk	299.6
3.	Pleasant Hill	Des Moines	Polk	286.6
4.	North Liberty	Cedar Rapids	Linn	215.9
5.	Ankeny	Des Moines	Polk	208.7
6.	Sageville	Dubuque	Dubuque	207.3
7.	Eldridge	Davenport	Scott	163.3
8.	Coralville	Cedar Rapids	Linn	160.1
9.	Urbandale	Des Moines	Polk	148.0
10.	Waukee	Des Moines	Polk	129.5

Table 6

Sources: 4, 15 and 17

IOWA'S GROWING CITIES AND TOWNS

County	Cities Or Towns	% Increase Since 1970	Pop. At The Time Of Special Census	Year Of Spec. Cens.
ıton	Newhall	24.8	875	1974
ıck Hawk	Hudson	28.3	1,970	1976
ɜmer	Denver	16.2	1,358	1975
ɜna Vista	Albert City	12.0	765	1976
lar	West Branch	21.9	1,612	1977
ɜrokee	Meriden	27.5	213	1976
ıyton	Farmersburg	47.0	280	1973
ınton	Comanche	25.9	4,367	1973
	Goose Lake	13.8	248	1973
llas	Adel	14.6	2,771	1975
	Desoto	55.0	572	1973
	Van Meter	33.4	619	1974
ɜatur	Weldon	24.5	193	1977
s Moines	Mediapolis	24.8	1,550	1975
ɜkinson	Arnolds Park	11.3	1,080	1975
	Okoboji	56.5	565	1975
	Spirit Lake	12.6	3,393	1975
ɔuque	Balltown	35.4	107	1975
	Sherrill	26.8	241	1974
ɜhrie	Panora	26.2	1,239	1977
va	Parnell	41.7	248	1976
ınson	Coralville	73.7	884	1974
	North Liberty	28.8	1,359	1974
	Sherryville	26.0	194	1974
	Swischer	45.6	607	1974
ıaska	Beacon	27.5	431	1972
	Fremont	34.4	645	1976
ɜshall	LeGrand	12.5	805	1973
	Marshalltown	1.1	26,506	1975
lls	Glenwood	13.1	5,002	1977
ıona	Whiting	21.5	717	1976
ɜcatine	Atalissa	49.6	365	1976
ymouth	Hinton	22.8	599	1976
lk	Johnston	950.9	2,333	1977
	Bondurant	171.6	1,255	1975
	Pleasant Hill	65.3	2,538	1975
	Grimes	60.9	1,342	1975
	Altoona	44.0	4,151	1974

Continued--

WA'S GROWING CITIES & TOWNS Cont'd

County	Cities Or Towns	% Increase Since 1970	Pop. At The Time Of Special Census	Year Of Spec. Cen.
lk, Cont'd	Ankeny	44.4	4,151	1975
	Clive	44.7	4,347	1975
	Polk City	31.7	942	1976
	West Des Moines	26.0	20,712	1975
	Carlisle	23.2	2,768	1974
	Urbandale	13.7	16,410	1975
tawattamie	Treynor	54.0	727	1976
ott	Bluegrass	22.9	1,268	1975
	Eldridge	70.9	2,624	1975
	Walcott	29.6	1,282	1976
	Long Grove	48.3	399	1976
ory	Ames	10.3	43,561	1977
	Huxley	47.0	1,377	1973
	Gilbert	37.2	715	1975
	Slater	11.8	1,223	1975
	Story City	24.1	2,611	1976
ren	Norwalk	32.6	2,313	1974
	Indianola	8.6	9,611	1975
	Milo	21.2	680	1975
	Hartford	37.6	801	1976
nebago	Forest City	17.3	4,506	1975
odbury	Bronson	25.4	242	1976
	Sergeant Bluff	83.4	2,135	1976

Table 7

urce: 15

POPULATION TRENDS FOR SELECTED IOWA CORE CITIES

County	Cities	% Increase Since 1970	Population At Time Of Special Census	Year Of Census
ack Hawk	Waterloo	-3.3	73,064	1975
buque	Dubuque	-0.9	61,728	1975
nson	Iowa City	+1.9	47,744	1974
n	Cedar Rapids	+1.5	108,987	1975
k	Des Moines	-4.0	193,772	1977
tt	Davenport	+1.4	99,836	1975
dbury	Sioux City	-0.9	85,115	1977

Table 8

urces: 15 and 20

POPULATION CHANGE IN PRIMARILY INDUSTRIAL COUNTIES*

Counties	1960 - 1970 % Change	1970 - 1977 % Change
Black Hawk	8.5	2.9
Cerro Gordo	-1.3	-1.8
Clinton	3.1	1.3
Des Moines	5.3	-4.8
Dubuque	13.2	7.0
Lee	-2.7	-1.7
Linn	19.2	2.4
Muscatine	9.9	5.7
Polk	7.4	4.9
**Pottawattamie	4.7	-0.3
Scott	19.8	7.8
Webster	-9.0	-2.7
**Woodbury	-4.4	(Z)

Table 9

*Iowa Counties that have 0.2% or more of the total county area used for industrial land use while the state average percentage for the industrial land use is only 0.09% and the number of employees exceeds 3500 or more.

**Pottwattamie and Woodbury Counties are included, although they do not meet the above criteria because they are among Iowa's SMSA.

(Z) Less than 50 persons or less than 0.05%.

Sources: 4, 12, 15, and 20

POPULATION CHANGE IN PRIMARILY
AGRICULTURAL COUNTIES*

Counties	1960 - 1970 % Change	1970 - 1977 % Change
Boone	-5.6	-1.3
Buchanan	-2.4	3.0
Butler	-2.9	2.0
Calhoun	10.2	-4.7
Chickasaw	-0.4	2.2
Franklin	-14.3	-1.9
Greene	-11.6	-6.4
Grundy	-0.1	-0.5
Hamilton	-8.2	-4.4
Hardin	-1.3	-1.6
Pocahontas	-10.1	-10.1
Story	27.3	10.3
Worth	-12.4	-2.3
Wright	-11.1	-4.6

Table 10

*Iowa counties that have average CSR of 70 or more; average percentage of 90% or more of prime agricultural land; and 90% or more of agricultural land.

Sources: 4, 12 and 15

ANNEXATION

ANNEXED LAND ACREAGE 1970 - 1977

Year	Acres
1970-1974	53,312
1975	13,312
1976	3,904
1977	2,880
Total Increase	73,408

Table 11

Source: 3

MUNICIPALITIES REPORTING GREATEST INCREASE IN LAND AREA

nicipality	County	Estimated Net Increase Since 1970 (In Acres)	1977 Acreage	% Of Increase In Acreage	% Change In Population
dar Falls	Black Hawk	8384	18,688	81	5
son City	Cerro Gordo	6016	15,744	62	-4
ttendorf	Scott	5632	13,568	71	31
scatine	Muscatine	4992	10,880	85	1
lantic	Cass	3584	5,184	224	1
okuk	Lee	2688	5,760	88	-8
lla	Marion	2560	12,288	26	11
tumwa	Wapello	2496	10,112	33	-9
es	Story	2368	13,120	22	11

Table 12

urces: 3, 12 and 20

NUMBER OF ANNEXATIONS IN IOWA 1975 - 1979

Year	# of Voluntary Annexations*	# of Involuntary Annexations**	Total
1975 - 1976	29	3	32
1976 - 1977	88	4	92
1977 - 1978	99	2	101
1978 - 1979	92	4	96

Table 12

Source: 19

*Since the 1972 Home Rule Act, all of the owners of land in a territory adjoining a city may apply in writing to the council of the adjoining city requesting annexation of the territory. An application for annexation under this section must be approved by resolution of the council which receives the application. If the territory is within the urbanized area of a city other than the city to which the request for annexation is directed, the application must also be approved by the board. For further details, look under Chapter 368, Section F in Code of Iowa.

**A petition for incorporation, discontinuance or boundary adjustment may be filed with the board by a city council, a county board of supervisors, a regional planning authority or five percent of the qualified electors of a city or territory involved in the proposal. For further details look under Chapter 368, Section 11, in Code of Iowa. Involuntary annexation often deals with a larger amount of land than voluntary annexation.

FACTS ON POPULATION AND ANNEXATION

- Table 6 shows that increase in population takes place more frequently in adjacent areas of cities such as Des Moines, Iowa City, Cedar Rapids, Davenport, Dubuque, Sioux City, Waterloo and Ames. City size is not the number one factor in attracting population, but the proximity to cities with greater employment opportunities, easy access to the cities by the highways and the additional attractive element such as a recreational opportunity such as Saylorville Reservoir, Coralville Reservoir and Clear Lake, are influential factors in attracting population.

- Between 1970-1978, population of Iowa increased by 71,000 people; the average annual change was 8,875.

- Cities that have 10,000 population or more tend to annex more frequently.

- According to Table 12, it is apparent that annexation and population increases do not usually correspond. More cities are financially in difficult shape, therefore they hesitate to extend the public utility services to its fringe areas. The cities annex for several reasons as listed below:

    1) To protect its developed area.
    2) To encourage and attract the industry by providing utility service.
    3) To implement the city master plan if the city planning board anticipates the expansion of the city.

- There have been several involuntary annexations (Clinton and Davenport are examples) which involved a great amount of land in early 1970. Usually, once the municipalities annex a large tract of land, they do not annex involuntarily again for awhile. There has not been any major annexation since 1975. Therefore, the figure shows a sharp decrease in annexed acreage.

RECREATION

1979 IOWA RECREATIONAL LAND USE

Public		
City	36,353	acres
County	64,770	"
State	284,537	"
Federal	114,551	"
Private	52,534	"
TOTAL	552,745	acres

Table 14

Total increase since 1970--
21,738 acres, 4.1%.

Average annual increase--
2,415 acres, 0.5%

Sources: 6 and 21

TRANSPORTATION

1979 IOWA RAILROAD LAND USE
(0.28% of State Area)

Type of Track	Acres	%
Road	84,520	83%
Switching & Other	16,790	17%
Total	101,310	100%

Table 15

ABANDONMENTS ACREAGE

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979*
Acres Abandoned	796	1682	2987	596	154	569	2928	2284	1612	133

Table 16

Average annual reduction: -1,446 acres.
Total acreage abandoned since 1970: -13,741 acres or 1,145 miles.

Source: 2 and 25

*As of April, 1979

RAILROADS ARE A DECLINING LAND USE

How Are Abandoned Rights of Way Used?

The State of Iowa has approximately 7,043 miles of railroads and ranks fifth nationally in total railroad mileage. Over 2,000 miles of rail lines were abandoned in Iowa between 1911 and 1969 and 1,145 miles were abandoned between 1970 and 1979. Iowa ranks sixth among the states in abandoned rail lines.

The unforested land in Iowa was originally tall grass prairie. Only a few remnants of this vast grassland remain today, and these make up only five percent of Iowa land. Some of the better examples of natural prairie in the state are found in pioneer cemeteries and along railroad rights of way.[9]

Most of the land that abuts railroad rights of way in Iowa is fertile agricultural land. The price of this land has soared in recent years and often brings more than $2,000 per acre. Farmers who own land abutting the railroads are anxious to buy abandoned rights of way, and segments are sold soon after the railroads offer them. More landowners now form collectives and hire an agent to represent them in negotiations with the railroad companies. The railroad companies usually are in favor of selling the rights of way to the adjacent landowners versus government agencies because they can get a better price from the private citizens.

Since the 1976 Act* which reserves to the state the right of first refusal in the purchase of rights of way, the state has a good opportunity to obtain rights of way. The State Conservation

*Public Law 94-210, 94th Congress; Railroad Revitalization Regulation Reform Act of 1976.

Commission has been keeping a close eye on abandonments because of their interest in developments for recreational and preservation purposes, but there has not been as much active public interest in rights of way in Iowa as there has been in other states such as Wisconsin and California.

The following tables are obtained through Harbridge House, Inc., Boston, Massachusetts and revised.

IOWA RAILROAD ABANDONMENTS LISTED 1970-1979

HH ID	ICC Docket	Sub	Termini	Miles	SMSA In	SMSA Out	Non-Railroad Miles	Type Transfer Sold	Type Transfer Rev	Type Transfer Unk	Use Pub	Use Pri	Use Unk	Railroad RR Use	Railroad Sub	Railroad Ab Trk R	Railroad Ab B/F/T	Railroad Neg	Railroad Ab ROW	Railroad Unk	Alt. Ass'nt
001	1	18	Clutier-Buckingham	13.7		X	13.7			X		Agr.									
002	1	22	Harcourt-Gowrie	5.4		X	5.4	X				Agr.									
003	1	24	Fort Dodge-Kalo	5.6		X											5.6				
004	1	25	Conrad-Eldora	16.3		X													16.3		16.3
005	1	28	Dike-Kesley	20.8		X	20.8	X				Agr.									
006	6	0	Randolph-Sidney	9.5		X	7.5	X				Agr.							2.0		2.0
007	6	02	Chariton-Humeston	16.9		X	16.9[B]	X			Rec.										
008	6	19	Corydon-Humeston	13.4		X													13.4		13.4
009	7	1	Oxford Jct.-Wyoming	5.9		X	5.9	X				Agr.									
010	7	10	Milford-Spirit Lake	7.4		X	7.4[C]	X			Rec.										
011	7	15	Storm Lake-Rembrandt	13.2		X	8.8	X				Agr.							4.4		4.4
012	7	25	Madrid-Luther	7.0		X													7.0		7.0
013	46	4	Gowrie-Near Palmer	29.1		X													29.1		29.1
014	46	7	West Union-Linn Jct.	70.5	X	X													70.5		70.5
015	46	8	Mt. Zion-Keosauqua	4.5		X	3.4			Transp									1.1		1.1
016	46	9	Hartley-Sibley	18.5		X													18.5		18.5
017	46	10	Oskaloosa-Michspur	3.3		X													3.3		3.3

[A] Abandonment still pending. Source: Chicago & North Western Transportation Company

[B] Lucas County is presently using all of the right of way for recreational purposes.
Source: Burlington Northern

[C] Sold in segments to:
a) State for bike or nature fitness trail
b) County for highway
c) City for golf Course
Source: Chicago, Milwaukee, St. Paul and Pacific Railroad

IOWA RAILROAD ABANDONMENTS LISTED 1970-1979

HH ID	ICC Docket	Sub	Termini	Miles	SMSA In	SMSA Out	Non-Railroad Miles	Non-Railroad Type Transfer Sold	Non-Railroad Type Transfer Rev	Non-Railroad Type Transfer Unk	Non-Railroad Use Pub	Non-Railroad Use Pri	Non-Railroad Use Unk	Railroad RR Use	Railroad Sub	Railroad Ab Trk R	Railroad Ab B/F/T	Railroad Neg	Railroad Ab ROW	Railroad Unk	Alt. Ass'mt
018	25644	0	Quimby-Anthon	20.9	X	X								20.9[A]							
019	25771	0	Manly-Mason City	6.9		X	3.5	X				Agr.		3.4							
020	25776	0	Hampton-Belmond	21.6		X	21.6	X				Agr.									
021	25888	0	Sumner-Bremer	15.4		X	15.4	X				Agr.									
022	25897	0	Kanawha-Denhart	4.5		X	4.5	X				Agr.									
023	25920	0	Within Sioux City	12.6	X												12.6[E]				
024	25969	0	Waukon Jct.-Waukon	22.8		X	21.6 1.2	X			Rec.	Agr.									
025	25969	0	Eldridge-Dixon	10.5	X		10.5	X				Agr.									
026	26081	0	Harlan-Council Bluffs	41.9	X	X	41.9[D]	X				unk									
027	26231	0	Oskaloosa-Keith Burg	93.4		X	68.6 24.8	X				Agr. Rec.									
028	26445	0	Hills-Montezuma	63.4		X	63.4	X				Rec.									
029	26598	0	West Union-Postville	23.4		X	23.4	X				Agr.									
030	26647	0	Farnhamville-Carnarvon	31.8		X	31.8	X				Agr.									
031	26649	0	Orange City-N.I. Jct.	20.6		X	20.6	X				Agr.									
032	26650	0	Odebolt-Onawa	54.4	X	X	41.6	X				Agr.		12.8							
033	26712	0	Junction Switch-Worthington	10.2		X	10.2	X				Agr.									
034	26714	0	Byron, IL-Dubuque, IA	83.3	X	X	73.3	X				Agr.							10.0		10.0

[A] Abandonment still pending. Source: Chicago & North Western Transportation Company

[D] Stockyards around Chicago under Conrail.

[E] Switching tracks around a terminal.

IOWA RAILROAD ABANDONMENTS LISTED 1970-1979

HH ID	ICC Docket	Sub	Termini	Miles	SMSA In	SMSA Out	Non-Railroad Miles	Type Transfer Sold	Type Transfer Rev	Type Transfer Unk	Use Pub	Use Pri	Use Unk	Railroad RR Use	RR Sub	Ab Trk R	Ab B/F/T	Neg	Ab ROW	Unk	Alt. Ass'mt
035	26726	0	Farragut-Riverton	5.3		X	5.3	X				Agr.									
036	26805	0	Gowrie-Lanyon	6.7		X	6.7	X				Agr.									
037	26809	0	Henderson-Carson	6.8	X	X	6.8	X				Agr.									
038	26872	0	Flugstad-Webster City	5.4		X	5.4	X				Agr.									
039	26882	0	Shadyoak-Roberts	3.1		X										3.1[F]					
040	26893	0	Beulah-Elkader	19.3		X	19.3	X			Rec.	Unk.									
041	26907	0	Browns-Miles	8.5		X	8.5	X				Agr.									
042	26487	0	Delmar-DeWitt	13.6		X	13.6	X				Agr.									
043	124	-	Gilbertville - Cedar Rapids	49.1	X	X	49.1											49.1			
044	1	7	Stanwood-Tipton	8.2		X	4.0 1.0	X			Transp.	Agr.						3.0			
045	1	19	Stewartville-McIntire	5.6		X	2.0	X				Agr.						3.6			
046	1	50	Burt-Halfa	21.4		X	21.4	X				Agr.									
047	43	17	Washta-Anthon	15.0		X	4.5 2.0	X			Transp.	Agr.							8.5		
048	46	5	Little Rock-Rock Rapids	15.2		X													15.2		
049	6	18	Lamoni-Mt. Ayr	19.7		X	7.0 2.0	X			Rec.	Agr.							10.7		
050	1	27	Carroll-Somers	30.9		X	25.4 4.0	X			Rec.	Agr.							1.5		
051	1	45	Roland-Zearing	10.5		X	5.5 5.0	X			Transp. Rec.										

[F] Owned by the Fort Dodge, Des Moines and Southern Railway.

Source: ICC application for abandonment file.

IOWA RAILROAD ABANDONMENTS LISTED 1970-1979

HH ID	ICC Docket	Sub	Termini	Miles	SMSA In	SMSA Out	Non-Railroad Miles	Type Transfer Sold	Type Transfer Rev	Type Transfer Unk	Use Pub	Use Pri	Use Unk	Railroad RR Use	Railroad Sub	Railroad Ab Trk R	Railroad Ab B/F/T	Railroad Neg	Railroad Ab ROW	Railroad Unk	Alt. Ass'mt
052	1	46	Dayton-Stratford	9.1		X												9.1			
053	1	53	Bancroft-Ledyard	9.4		X	9.4	X				Agr.									
054	7	33	Spencer-Milford	13.9		X	10.5 0.5	X			Rec.	Agr.						2.9			
055	43	46	Onawa Jct.-Washta	14.7		X												14.7			
056	1	9	Wren-Hawarden	20.0		X	4.0	X			Transp.								16.0		
057	46	15F	Royal-Hartley	13.0		X								13.0[A]							
058	7	50	Conover-Decorah	11.1		X												11.1			
	TOTAL			1144.6			790.6							55.7		3.1	12.6	99.1	238.0		

Table 17

[A]Abandonment still pending

Sources: Information on HH ID 001-042 from Source #2, 9 and 29.
Information HH ID 043-058 from Source #29.

IOWA RAILROAD ABANDONMENTS LISTED 1970-1979

An Explanation of the Preceding Tables

In the railroad ownership category, total miles are also shown. This total is broken down and classified in six categories

In RR Use (mi): In railroad use (miles). Three possible railroad uses are:

- The right of way was sold to another railroad for rail operations. It was abandoned by one railroad and is now being used by another railroad.
- Although abandonment was granted by an official agency, such as the ICC, the applicant railroad did not abandon service and is still operating the line.
- Although service is now abandoned, the railroad wishes to keep its right of way (ROW) for future reuse. The railroad has stated it will not sell the property.

Subsid Miles: Subsidized miles. The whole or part of the abandonment is being subsidized by state or federal funds for continued operation.

Ab Trk Rights: Abandoned trackage rights. No right of way was actually abandoned. The railroad only abandoned a leased line.

Abnd B/F/T: Abandoned Bridge/Ferry/Terminus.

Negot Miles: Negotiating. The railroad is in the process of negotiating the sale of the property.

Abnd ROW: Abandoned right of way. The railroad has officially abandoned this ROW; however, it still belongs to the railroad company. Interested parties may acquire it for alternate uses.

Unk Ownership Miles: Unknown ownership miles. This column indicates the number of miles of rights of way that were listed as abandoned, but for which current ownership (railroad or non-railroad was not determined. The inability to determine the ownership of these abandoned rights of way was done to several factors: 1) the former operating railroad would not provide the information or 2) current and reliable records were not available for specific abandoned ROW. In some cases there was uncertainty as to whether the abandonments had legally reverted to abutting land owners although the ROW had been farmed over or developed. However, for the purposes of the study, these "unknown" abandonments were included in the Inventory and assessed for alternate uses.

Assessment of Abutting Land Use

001. Clutier to Buckingham, Tama Co. (13.70 miles)

This ROW has been sold by the Chicago & North Western Transportation Company. Although a detailed land use inventory was not done, an on-site inspection was made in November, 1976. The abutting is predominantly cropland with some pasture and a small amount of forest. About 2 miles of ROW was being leveled by bulldozers and plowed. Bridges and track had been removed. Parts of the ROW still intact supported good stands of native prairie.

002. Harcourt to Gowrie, Webster Co. (5.40 miles)

Chicago & North Western Transportation Company (C&NW) has sold this ROW. It passed through predominantly cropland. Some pasture and park land were also adjacent to the ROW.

003. Fort Dodge to Kalo, Webster Co. (5.60 miles)

A very diverse ROW running through forest (39%), recreational land (17%), wetland (8%), cropland (4%), pasture (4%), mining area (4%), and residential (4%). It generally follows the Des Moines River and at one point crosses on a bridge that was intact as of 1965. The ROW has potential for use as a trail.

004. Conrad, Grundy Co., to Eldora, Hardin Co. (16.3 miles)

This ROW passed through a relatively high amount of pasture (20%). Adjacent forest cover was low (2%), and there was some adjacent wetland (2%). An on-site inspection was conducted in November, 1976, and there were indications that the ROW was being readied for conversion. Bridges and track had been removed and brush cutting had occurred on some segments.

At the time of abandonment, a bicycle trail on the right of way was being considered by state and county park officials if funding could be found.

005. Dike, Grundy Co., to Kesley, Butler Co. (20.80 miles)

This ROW has been sold and converted to agricultural land. Excellent stands of native prairie once occurred on the ROW. An on-site inspection was made in November, 1976. Two small segments of ROW, each less than a mile in length, still are intact north of Beaver Creek near the town of Parkersburg. The rest has been leveled and plowed.

006. Randolph to Sidney, Fremont Co. (9.51 miles)

This ROW passes through predominantly cropland (75%) plus a small amount of pasture and "open space." It is easily accessible by road (10% of total frontage) and crosses the West Nishnabotna River.

007. Chariton, Lucas Co., to Humeston, Wayne Co. (16.92 miles)

Because the ROW has been sold to the county conservation commission for recreational purposes (bike trail included), a detailed land use inventory was not done. A quick survey from a 1973 photo shows that the adjacent land use was largely cropland, pasture and forest. For about half of its length, the ROW followed Chariton Creek.

008. Corydon to Humeston, Wayne Co. (13.40 miles)

Cropland and pasture are the major land uses adjacent to this ROW. Small amounts of forest, wetlands, and "open space" also occur. Four bridges of 75 feet or longer have been removed.

009. Oxford Junction to Wyoming, Jones Co. (5.94 miles)

This ROW has been sold and a detailed land use inventory was not done. A quick survey of a 1970 photo shows the major land uses to be cropland with some pasture.

010. Milford to Spirit Lake, Dickinson Co. (7.43 miles)

Running through a heavily used recreational section of the state, the ROW passes within five miles of three large natural lakes, seven small lakes and at least six marshes. Less than 50 percent of the adjacent land is in crops. A bridge crosses the connection between two of the large lakes. This ROW has high potential for use as a trail.

011. Storm Lake to Rembrandt, Buena Vista Co. (13.20 miles)

The south end of this ROW is in a town with a small college and large natural lake. The ROW itself runs through predominantly cropland. Multi-use potential is high for recreation, education and preservation of habitat.

012. Madrid to Luther, Boone Co. (7.00 miles)

Only 12.7 acres (approximately 1 mile) of this right of way is actually owned by the Chicago, Milwaukee, St. Paul and Pacific Railroad without reversionary clauses. The proximity to Saylorville Reservoir (two to four miles away) and Ledges State Park (the most heavily used Iowa state park) enhances the recreational potential of this ROW. It runs through largely cropland with a small amount of forest and other land use. Excellent stands of native prairie exist on the ROW. It has high potential for use as a trail. On-site inspection was made in November, 1976.

013. Gowrie, Webster Co., to Palmer, Pocahontas Co. (29.10 miles)

Botanically rich Kalsow Prairie State Preserve is within a few yards of this ROW. Several prairie remnants have been noted within the ROW itself. The ROW lies four miles from the Twin Lakes recreational area and passes through predominatly cropland. High potential for use as additions to Kalsow Prairie Preserve and low-intensity recreational use. Located in intensively farmed area where little natural habitat is left.

014. West Union, Fayette Co., to Linn Junction, Linn Co. (70.48 miles)

Spanning three counties, this ROW starts on the western outskirts of Cedar Rapids and connects with another abandoned

ROW at West Union (#29). 836.3 acres (approximately 69 miles) of the total 938.1 acres in this right of way were obtained through easement or reversionary title. It passes through 66% cropland, 9% pasture, 3% forest, 8% "open space," and several towns. At Independence, Buchanan County, the ROW crosses a reservoir on a bridge which was still intact on November 15, 1976. There are plans for road construction parallel to the right of way for 15 miles from Cedar Rapids to Center Point.

015. Mt. Zion to Keosauqua, Van Buren Co. (4.50 miles)

This short ROW lies in the uplands between a large bend in the Des Moines River. It runs through 30% cropland, 12% pasture, 3% forest, 1% wetland and 5% "open space." The ROW passes through Keosauqua, has an endpoint adjacent to the Des Moines River, and is adjacent to Iowa Highway 1 for much of its length.

Three-fourths of a mile of this right of way has reverted to street use. This right of way goes between State Road 1 and the Des Moines River past a park and recreation area. Snowmobiling is popular in the area. Although there has been no public interest expressed, this ROW would appear to have potential for recreation use.

016. Hartley, O'Brien Co., to Sibley, Osceola Co. (18.49 miles)

This ROW runs predominantly through cropland (84%) plus some pasture. It connects three small towns. Most of this land was used by the railroad under easement or reversionary title. The Conservation Commission recommends that since this ROW is such prime farmland it be returned to agricultural uses.

017. Oskaloosa to Mich. Spur, Mahaska Co. (3.32 miles)

Starting in the city of Oskaloosa, this short ROW passes through cropland (42%), pasture (17%), forest (4%), and "open space" area (15%). An earlier abandoned section continues east from the endpoint of this ROW and borders Lake Keomah State Park. Has potential as a bike path from Oskaloosa to the state park.

This ROW is between the town of Oskaloosa (population 11,224) and an abandoned coal mine. Ownership of certain segments of this ROW is currently being contested in court as abutting landowners protested the railroad's sale of the property to a private citizen. The railroad retains 1.82 miles of this ROW. As the ROW passes Lake Keomah, a state park with camping, it has potential as a recreation trail from Oskaloosa to the park.

018. Quimby, Cherokee Co., to Anthon, Woodbury Co. (20.90 miles)

Running through the Little Sioux River valley, the ROW crosses the stream at several points. Cropland (49%), forest (2%), wetland (1%), mines (2%) and "open space" area 6% border the ROW, which closely parallels Iowa Highway 31.

019. Manly, Worth Co., to Mason City, Cerro Gordo (6.90 miles)

This ROW has been sold and a detailed land use inventory was not done. A quick survey of a 1965 photo revealed the major adjoining land use to be cropland with a significant amount of residential and some forest land.

020. Hampton, Franklin Co., to Belmond, Wright Co. (21.60 miles)

This ROW has been sold. A detailed inventory was not done. A quick survey of 1965 photos shows the ROW to pass through largely cropland.

021. Sumner to Bremer, Bremer Co. (15.40 miles)

A detailed inventory was not done on this ROW which has been sold. A quick survey of 1964 photos reveals the abutting land use to be largely cropland and pasture. The ROW crosses the Wapsipinicon River and is adjacent here to forest and wetlands.

022. Kanawha to Denhart, Hancock Co. (4.50 miles)

This short ROW has been sold. No detailed inventory was done. A quick survey of a 1965 photo reveals the adjacent land use to have been largely cropland with some pasture. A 1974 county road map shows this ROW to be nonexistent.

023. Sioux City, Woodbury Co. (12.59 miles)

This ROW is part of a railroad switchyard complex. It is surrounded by industry. No potential for alternate use.

024. Waukon Junction to Waukon, Allamakee Co. (22.80 miles)

This ROW has been sold. A 1974 county road map shows it as being nonexistent. A quick survey of a 1964 photo shows that the ROW ran through the flood plain of Paint Creek. Forest (especially in Yellow River State Forest and near the Mississippi River), cropland and pasture were the major adjoining land uses.

025. Eldridge to Dixon, Scott Co. (10.50 miles)

This ROW has been sold. A land use inventory was not done.

026. Harlan, Shelby Co., to Council Bluffs, Pottawattamie Co. (41.90 miles)

This ROW has been sold. It ran through 68% cropland, 9% "open space," 8% pasture, and 2% forest. Many road abuttments and crossings made the ROW easily accessible.

027. Oskaloosa, Mahaska Co., to Keithsburg, IL (93.40 miles)

This long ROW has been sold. Detailed land use information was gathered only on 28 miles in Louisa County and adjacent Illinois. This segment contained relatively high amounts of forests (19%) and wetlands (5%). A bridge crossing the Mississippi River was still intact in November, 1976. The remainder of the ROW was largely cropland with some pasture and forests, especially near the North Skunk River in Henry County.

028. Hills, Johnson Co., to Montezuma, Poweshiek Co. (63.41 miles)

This ROW connects many towns together. Several adjacent roads also make it accessible. It runs through 65% cropland, 10% pasture, 3% forest and 5% "open space." In northeastern Washington County, the ROW follows the heavily wooded English River. It crosses a pond near Riverside, Washington County. Hills, the eastern endpoint, is only seven miles from Iowa City, an education center.

029. West Union, Fayette Co., to Postville, Allamakee Co. (23.37 miles)

Passing through almost as much forestland as cropland, this ROW twists and turns its way through very rolling

topography. Near West Union, it passes through Echo Valley State Park. It also adjoins a relatively high amount of wetlands and is easily accessible by road.

030. Farnhamville, Calhoun Co., to Carnarvon, Sac Co. (31.76 miles)

This ROW, which contained prairie remnants, has been sold. Photos dated 1965 reveal that it went through largely cropland plus some pasture. Near the Raccoon River, the ROW passed through some forestland.

031. Orange City to N. I. Junction, Sioux Co. (20.58 miles)

This ROW runs through predominantly cropland with some pasture. Its eastern endpoint (Orange City) contains a small college. The western endpoint is one mile from Hawarden (which is on the Big Sioux River) and six miles from Oak Grove County Park, one of the few public recreational areas in Sioux County.

032. Odebolt, Sac Co., to Onawa, Monona Co. (54.40 miles)

This long ROW has been sold. It passed largely through cropland and followed Iowa Highway 135 over most of its length. The ROW also was usually in or near the Maple River valley.

033. Junction Switch, Jones Co., to Worthington, Dubuque Co. (10.18 miles)

This Row, which crosses the North Fork of the Maquoketa River and ends near the Maquoketa River, has been sold. A brief survey of 1957 and 1964 photos shows the major adjacent land uses to have been cropland with some pasture.

034. Byron, IL, to Dubuque, Dubuque Co. (83.30 miles)

This ROW has been sold. Since almost all of its length was in Illinois, no land use analysis was done.

035. Farragut to Riverton, Fremont Co. (5.26 miles)

Being close to the Riverton Wildlife Area, this ROW had high adjacent forest, wetland and "open space" cover. The ROW has been sold.

036. Gowrie to Lanyon, Webster Co. (6.70 miles)

This short ROW passed through predominantly cropland. It has been sold.

037. Henderson, Mills Co., to Carson, Pottawattamie Co. (6.76 miles)

Following the West Nishnabotna River, this ROW runs through 63% cropland, 6% forest, 2.5% pasture and 9% open space area.

038. Flugstad to Webster City, Hamilton Co. (5.40 miles)

This ROW, which has been sold, was not included in a detailed land use inventory. A quick survey of a 1965 photo shows the land to have been predominantly in crops. It also passed through residential areas of Webster City.

039. Shady Oak to Roberts, Webster Co. (3.10 miles)

This short ROW has been sold. We could not locate either endpoint, thus a land use inventory was not done.

040. Beulah to Elkader, Clayton Co. (19.29 miles)

A town by the name of Beulah was not located. However, a 1974 county road map shows an abandoned ROW approximately 18 miles long between Elkader and Froelich.

041. Near Clinton Co., Browns and Miles, Jackson Co. (8.05 miles)

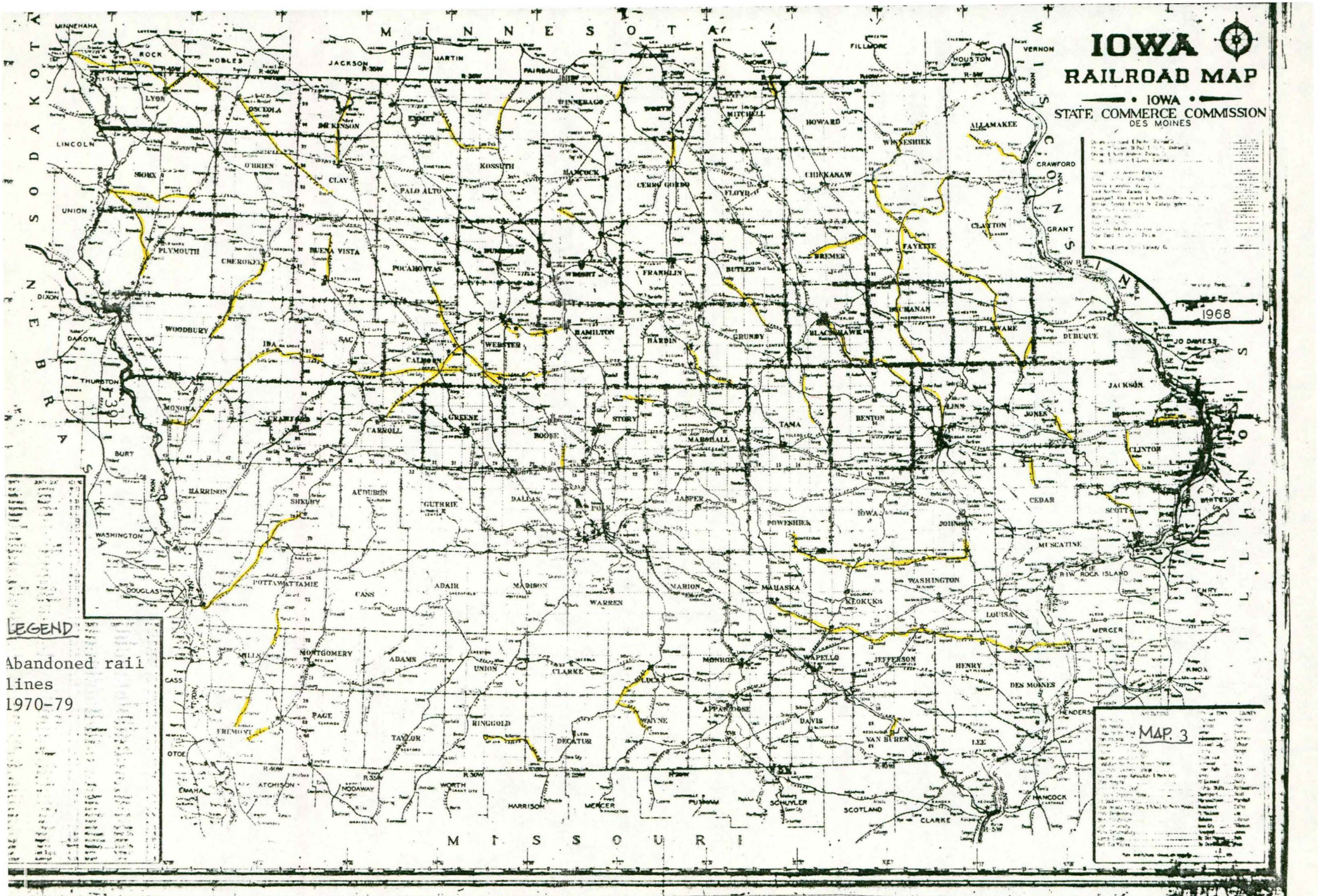
This ROW has been sold and a detailed land use inventory was not done. A 1957 photo shows the major land use to have been cropland with some pasture and forest. The ROW followed Iowa Highway 64 for a few miles.

042. Delmar to DeWitt, Clinton Co. (13.60 miles)

This ROW passed through predominantly cropland with some pasture. It has been sold.

045. Roland to Zearing, Story Co. (10.5 miles)

This ROW has been purchased by the Story County Board of Conservation. It contains botanically rich prairie remnants. A relatively high amount (12.5%) of the adjacent land is pasture. For most of its length, the ROW follows a paved county road. The ROW, bridges and crossings were intact as of November, 1976. Earth fill has been removed in two places but damage is relatively minor. The railroad has petitioned the Interstate Commerce Commission for permission to abandon an additional segment from Zearing to Marshalltown. This abandonment has high potential for multi-use purposes.


IOWA
RAILROAD MAP
IOWA
STATE COMMERCE COMMISSION
DES MOINES
1968
MAP 3
LEGEND
Abandoned rail lines 1970-79
MINNESOTA
SOUTH DAKOTA
NEBRASKA
MISSOURI
ILLINOIS
WISCONSIN

Source: 29

ABANDONED RAILROAD ROW LAND USE 1970-1979 IN IOWA

Use	Miles	Acres
Agriculture	536.2	6488
Recreational	144.5	1748
Transportation	18.9	229
Terminal & Switching Yard	12.6	151.0

Table 18

Sources: 2, 9 and 29

1979 IOWA AIRPORT LAND USE

Category	# Of Existing	Current Acres
I	9	12,085
II	40	8,486
III	25	2,567
IV	17	949*
Total	91	24,087

Table 19

*Only negliglble amount of expansion has occurred since 1976.

Source: 25

1978 IOWA ROAD AND STREET LAND USE

By System

Highway Systems	1970		1978		% Change		% of Total Road & Street Land Use
	Miles	Acres	Miles	Acres	Miles	Acres	
Secondary Rural	90,228	842,802	89,561	855,586	-0.7	1.5	74.2
Rural Primary	8,260	153,510	8,233	156,155	-0.3	1.7	13.5
Municipal Street	11,669	67,286	12,007	84,206	2.9	25.1	7.3
Interstate	794	30,868	1,012	38,361	27.5	24.3	3.3
Municipal Primary	1,140	8,927	1,189	15,238	4.3	70.7	1.3
Park & Institution	209	1,391	305	2,440	50.0	75.4	0.2
Federal Domain	27	216	120	960	344.4	344.4	0.1
TOTAL	112,327	1,105,000	112,143	1,152,946	-0.2	4.3	100.0

Table 20

Total road and street land use consists of 3.22% of state land area. Average annual change 1970-1978: +5,993 acres.

By Use

Use	1970 (Acres)	%	1978 (Acres)	%
Remaining Right of Way	760,621	69	714,780	62
Surface	304,120	28	369,539	32
Shoulder	40,259	3	68,627	6

Table 21

Source: 25

ACREAGE INCREASE IN ROAD AND STREET
LAND USE BY SYSTEM SINCE 1970

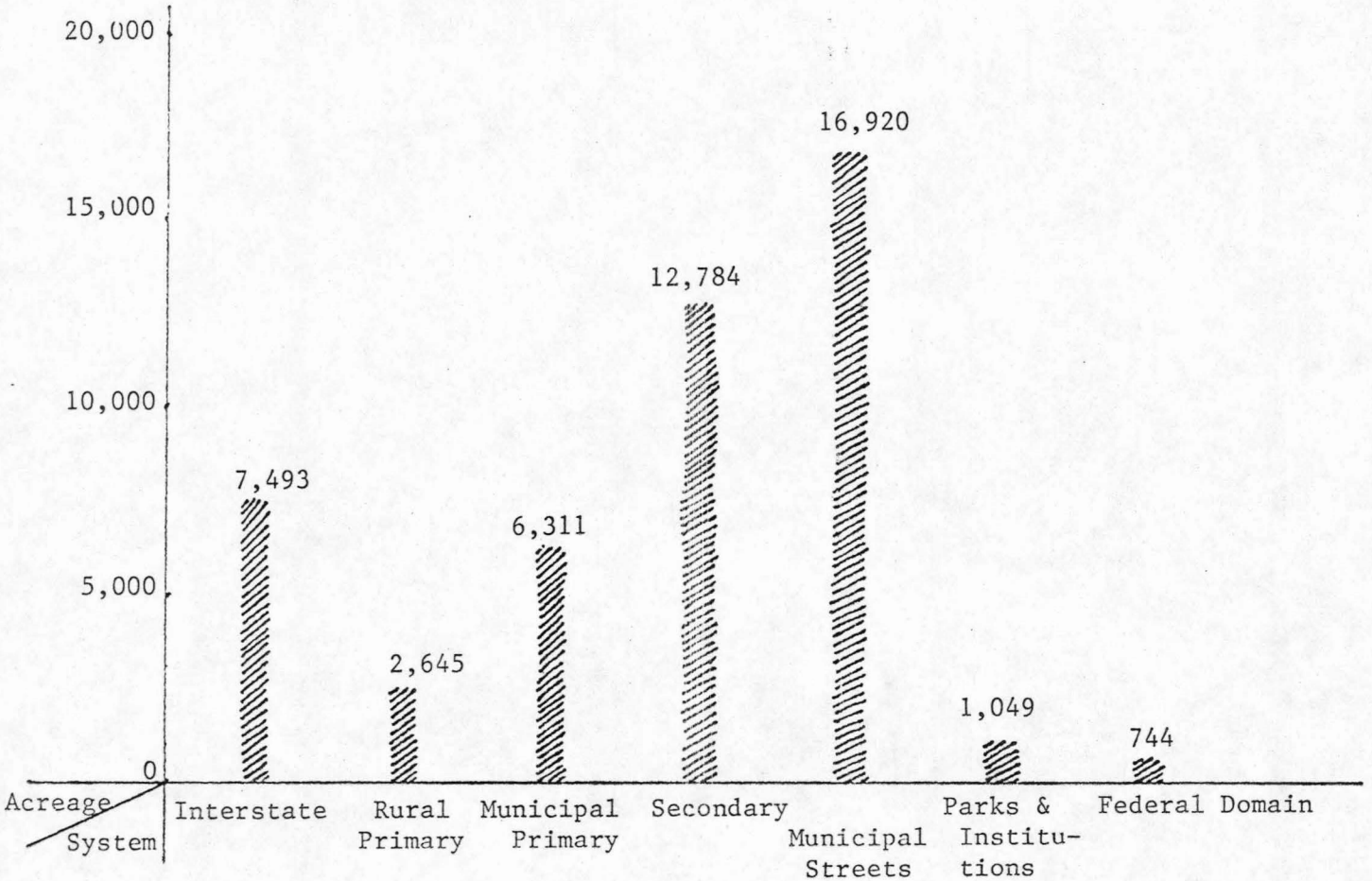


Fig. 6

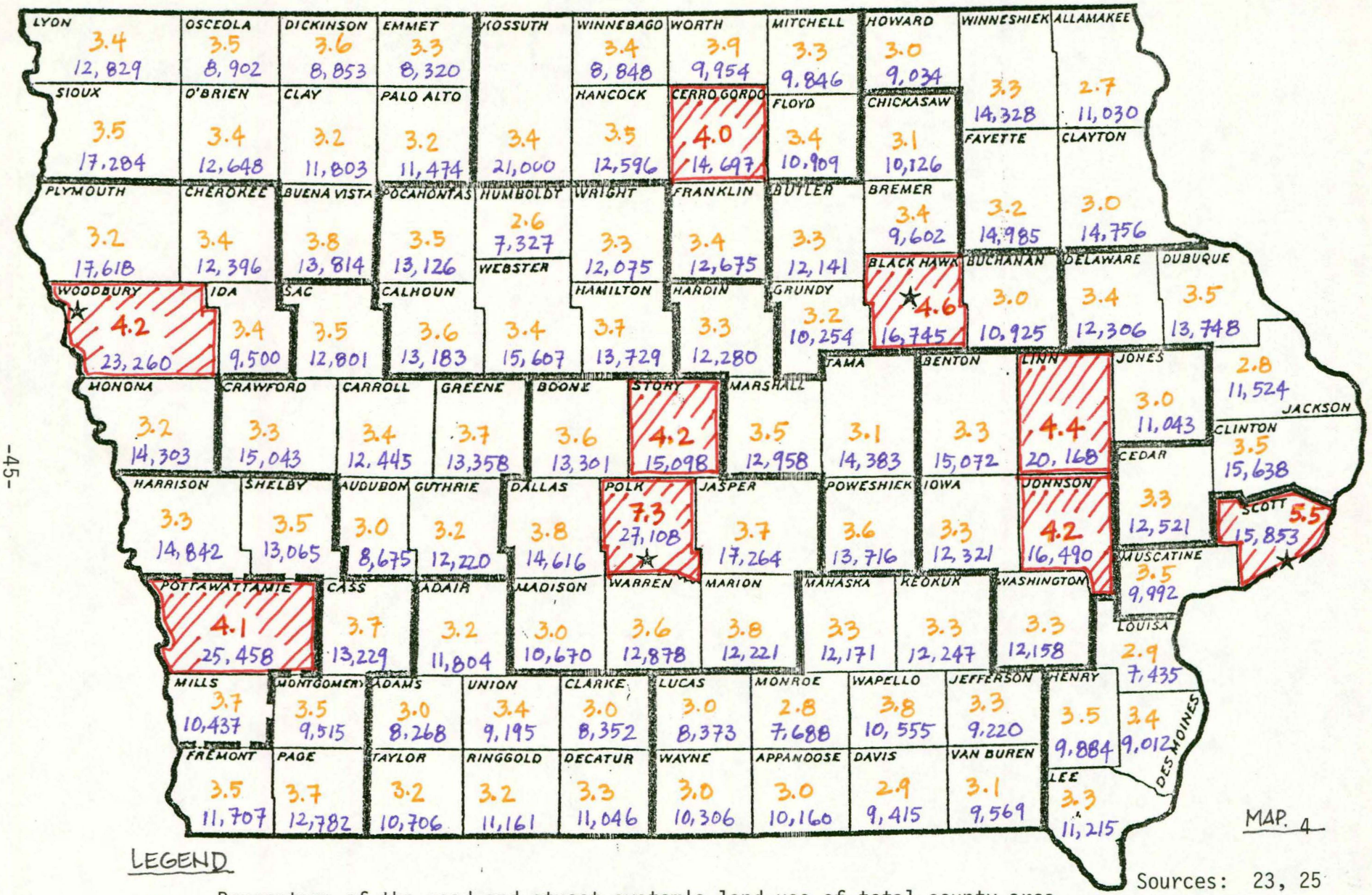
Source 25

Table 20 shows the difference of percentage change between the mileage and acreage increase for municipal streets and municipal primary system. This is because we have built wider roads for the municipal system. For example, in 1970 street width did not exceed 24 feet, and in 1978 streets of 45 feet or over were being built.

According to Map 4, counties with 4.0% or more of total county area for their road and street land use tend to have a stronger industrial force. Average state percentage for road and street land use is 3.2%. It seems logical for industry to be attracted to the areas where an efficient and easy transportation system exist. Map 5 is only the beginning of a possible in-depth analysis on Iowa's industrial development and its relationship to the transportation system. The following are the examples of the data needed for this potential study:

- Find the volume of truck traffic for the routes connecting major industrial cities or towns.
- Study the accessibility of other transportational modes used by the industry.
- Analyze the types of transportation preferred by the kinds of industry.
- Evaluate the possible change taking pace in transportation land use as a result of the industrial growth.
- Determine the accessibility of transportation for employees of the industries.

1978 ROAD AND STREET LAND USE BY EACH COUNTY IN IOWA



MAP. 4

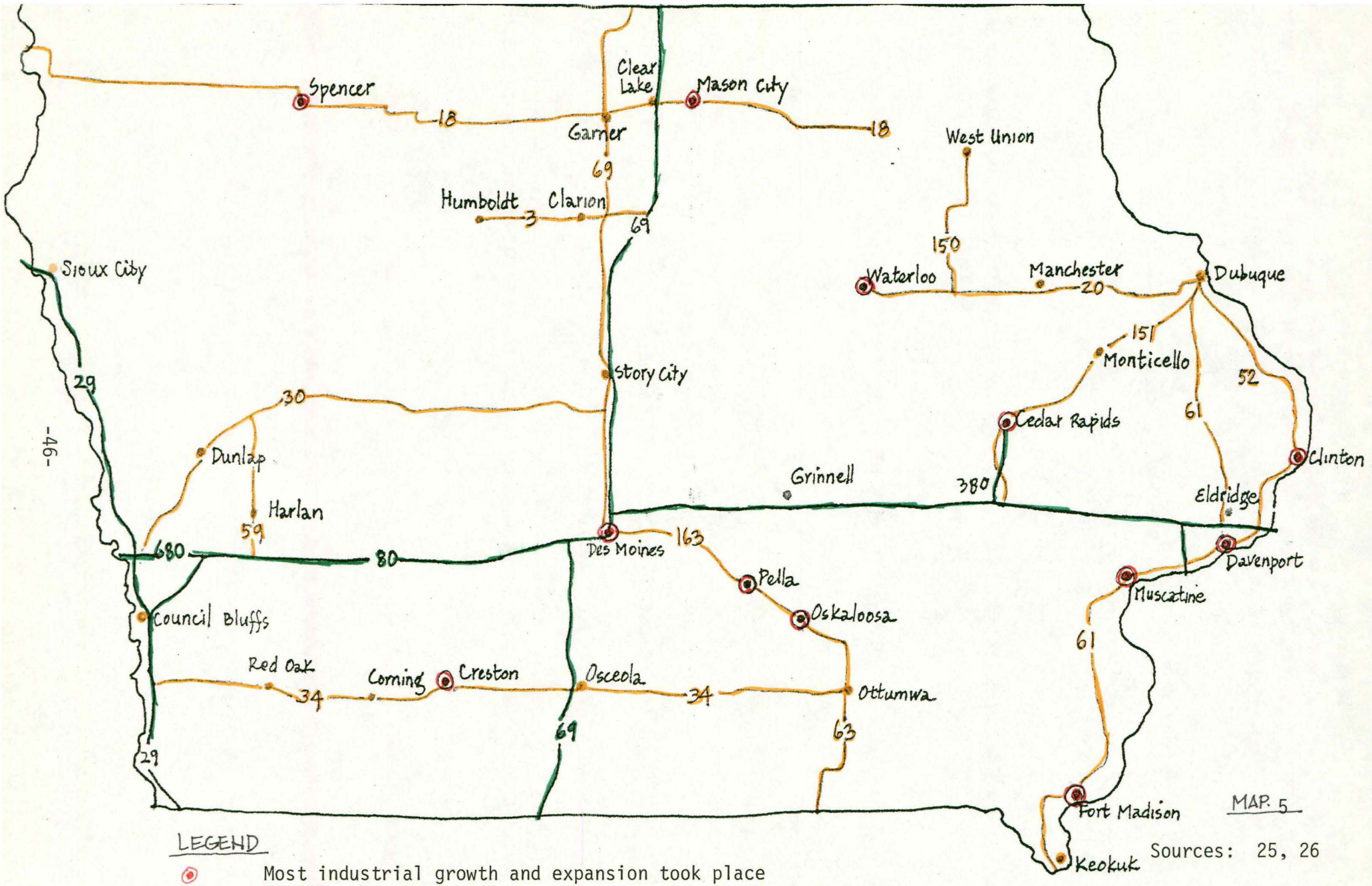
LEGEND

3.5 Percentage of the road and street system's land use of total county area

11,707 Acreage of the road and street system in each county

Counties in which road and street land use is 4% or more of the county area

Sources: 23, 25



MAP 5

LEGEND

- Most industrial growth and expansion took place
- Either most industrial growth or expansion took place
- —34— U. S. Highway
- —80— Interstate

Sources: 25, 26

ROADS AND STREET TRENDS, 1970-1978

- Greatest increase is in the municipal primary system, not counting the park and institution and the federal domain system.
- Least increase is in the rural primary system.
- Remaining right-of-way acreage decreased 45,841 acres since 1970, but the surface acreage increased 65,419 acres (21.5%) and the shoulder acreage increased 28,368 acres (70.5%).

SUMMARY OF TRANSPORTATION LAND USE IN IOWA, 1979

Use	Acres	% of State Land	Avg. Annual Change 1970-1979
Airports	24,087	0.001	Negligible
Railroads	101,310	0.280	-1,527 Acres
Highways	1,152,946*	3.220	+5,993 Acres
Total	1,278,343	3.50%	+4,466 Acres

Table 22

Source: 2, 25

*Since 1979 data is not yet available, January 1, 1979, data is used. There has been no significant change in the last 8 months.

IOWA INCORPORATED AREA LAND USE

	1970	1978
Incorporated Areas		
Agriculture	429,899 Acres	464,190 Acres
Residential	239,225 "	296,157 "
Transportation	79,395 "	103,516 "
Recreation	43,000 "	62,000 "
Other*	208,246 "	150,310 "
Total	999,765	1,076,173 "

Table 23

*Manufacturing, commercial and their associated land use; undeveloped land; and miscellaneous

Sources: 5, 6, 21, 23 and 25

IOWA LAND USE TRENDS 1970 - 1979

Land Use	1970	1979	Avg. Annual Change
griculture	33,569,629 Acres	33,200,970 Acres	-40,962 Acres
ecreation	531,007 "	552,745 "	2,415 "
esidential	239,225 "	296,157 "	6,326 "
ransportation	1,242,508 "	1,281,749 "	4,360 "

Table 24

ADDITIONAL REMARKS

Some of the problems encountered in gathering data on land use and its related issues need to be mentioned. The greater part of the data was obtained by talking with various helpful officials because the updated information is not published. By the time they get published, they are outdated.

There is a lack of consistency both in the methodology and definitions of terms used by the different departments and agencies. This inconsistency makes it impossible to compare or analyze the separate sets of data on the same subject. Therefore, it was often necessary to use estimates on subjects as follows: acreage of the incorporated area; and the commercial land use for the entire state of Iowa. Undoubtedly there is a need to unify the methodology and definitions on both the local and state level.

Due to the limited time, this report does not include an indepth analysis of each table and the current trends. The prediction of any future trends in land use is not done in this report.

APPENDIX 1

Total Iowa Land and Water Acreage

Land = 35,802,240 acres

Under Water = 223,360 acres

TOTAL = 36,025,600 or 56,290 sq. miles

Sources: 13, 17 and 23

County	County Area (Acres)	County	County Area (Acres)	County	County Area (Acres)	County	County Area (Acres)
air	364,160	Des Moines	261,248	Linn	458,752	Story	363,520
ams	272,640	Dickinson	242,880	Louisa	257,984	Tama	460,800
lamakee	406,848	Dubuque	391,808	Lucas	277,632	Taylor	337,664
panoose	334,720	Emmet	252,288	Lyon	376,632	Union	272,000
dubon	286,720	Fayette	465,856	Madison	361,024	Van Buren	311,616
nton	459,264	Floyd	321,920	Mahaska	365,952	Wapello	279,360
ack Hawk	363,520	Franklin	374,976	Marion	318,720	Warren	397,120
one	366,720	Fremont	335,232	Marshall	367,360	Washington	363,520
emer	280,960	Greene	364,096	Mills	285,760	Wayne	340,352
chanan	363,648	Grundy	320,640	Mitchell	298,816	Webster	459,520
ena Vista	366,336	Guthrie	381,440	Monona	447,488	Winnebago	256,704
tler	372,480	Hamilton	369,536	Monroe	278,400	Winneshiek	440,320
lhoun	365,568	Hancock	364,928	Montgomery	270,080	Woodbury	557,248
rroll	367,296	Hardin	367,168	Muscatine	283,200	Worth	256,064
ss	357,760	Harrison	445,312	O'Brien	367,936	Wright	369,024
dar	374,400	Henry	281,600	Osceola	254,592		
rro Gordo	368,128	Howard	301,376	Page	342,400		
erokee	366,720	Humboldt	278,400	Palo Alto	358,720		
ickasaw	323,392	Ida	275,840	Plymouth	552,320		
arke	274,496	Iowa	373,568	Pocahontas	371,584		
ay	364,864	Jackson	412,032	Polk	369,920		
ayton	498,752	Jasper	467,840	Pottawattamie	616,448		
inton	443,776	Jefferson	279,040	Poweshiek	376,960		
awford	458,240	Johnson	396,352	Ringgold	344,128		
llas	382,016	Jones	374,400	Sac	369,984		
vis	325,824	Keokuk	370,560	Scott	290,304		
catur	339,200	Kossuth	626,560	Shelby	375,680		
laware	365,824	Lee	337,536	Sioux	490,240		

urce: 23

DATA SOURCES

1 Adefuye, Boyejo; "Land Use in Iowa Prepared for the Temporary State Land Preservation Commission, November, 1978.

2 Availability and Use of Abandoned Rights of Way. Task 2. Inventory of Abandoned Rights of Way; Harbridge House, Inc.; Boston, Mass.; 1977.

3 Boundary and Annexation Survey: 1979; U. S. Department of Commerce.

4 Current Population Reports; April, 1979; U. S. Department of Commerce, Bureau of Census).

5 Existing Land Use in Iowa; Iowa State Office for Planning and Programming; 1978 Rev.

6 Gibson, James A. and Timmons, John F.; Land Use Inventory and Projection Model with Applications to Iowa and Its Subregions; Card Report 82, October, 1978.

7 Iowa Agricultural Statistics: 1977; Iowa Department of Agriculture; 1977.

8 Iowa Agricultural Statistics: 1978; Iowa Department of Agriculture; 1978.

9 Klass, Erwin E., Iowa Cooperative Wildlife Research Unit, Iowa State University; Railroad Abandonments in Iowa, 1970-76: An Assessment of Adjoining Land Use Relative to Alternative Disposition of Rights of Way.

10 Merz, Robert W.; Forest Atlas of the Midwest; 1978.

11 1974 Census of Agriculture; U. S. Department of Commerce; 1977.

12 1977 County and City Data Book; U. S. Department of Commerce, Bureau of Census, 1977.

13 1977 Soil Conservation Service National Resource Inventories; ISU Statistical Laboratory; 1979.

14 1978 County Conservation Area Directory; Iowa Conservation Commission, 1978.

15 1979 Statistical Profile of Iowa; Iowa Development Commission, 1979.

16 Rosenberry, Paul; USDA Prime Land Study.

17 U. S. Statistical Abstract: 1978; U. S. Bureau of Census, 1978.

18 Data furnished by Agriculture Stabilization Conservation Service; Iowa State Department of Agriculture; June, 1979.

19 Data furnished by City Development Board; Iowa State Office for Planning and Programming; June, 1979.

20 Data furnished by Office of State Demographer; August, 1979.

21 Data furnished by Iowa Conservation Commission, Bureau of Outdoor Recreation; June, 1979.

22 Data furnished by Iowa Crop Reporting Service, June, 1979.

23 Data furnished by Iowa Department of Revenue, Property Tax Division; July, 1979.

24 Data furnished by Iowa Department of Soil Conservation; June, 1979.

25 Data furnished by Iowa Department of Transportation; June and July, 1979.

26 Data furnished by Iowa Development Commission, Industrial Development Division, July, 1979.

27 Data furnished by Iowa League of Municipalities; August, 1979.

28 Data furnished by U. S. Forest Service; U. S. Department of Agriculture.

29 Data furnished by the ROW Property Sales Department from Burlington Northern Railroad; Chicago & North Western; Chicago, Milwaukee St. Paul and Pacific; Chicago, Rock Island and Pacific; and Illinois Central Gulf; July and August, 1979.