

APPENDIX B
GROWTH DETERMINANTS
TECHNICAL MEMORANDUM NO. 3

POPULATION

Total Population Trends. In examining total population trends in the six-county region comprised of Boone,-Hamilton, Hardin, Marshall, Polk and Story there was a collective increase between 1970, 1980 and 1990. Net change for the 20-year period was 42,958, up 9.4 percent. While the number increased between the three decennial periods it was at a decreasing rate - 5.7 percent for 1970-80 and 3.5 percent for 1980-90. In contrast, the State of Iowa increased between 1970 and 1980 then decreased between 1980 and 1990. Net change for the 20-year period was 36,500, up 1.3 percent. (Between 1980 and 1990 the State decreased by 50,830, down 1.7 percent).

If Polk County is excluded from the region, the remaining five counties of Boone,-Hamilton, Hardin, Marshall and Story reflected a collective increase between 1970 and 1980, followed by a collective loss between 1980 and 1990. The five counties increased from 170,960 in 1970 to 179,800 in 1980 for a net gain of 8,840. The five counties then decreased to 172,879 in 1990 for a net loss of 6,921.

If the five counties are compared individually, Story County increased steadily from 1970 to 1980 and to 1990. The other four counties generally lost from 1970 to 1990. A slight out-migration trend appeared in the four counties between 1970 and 1980 (-703) that became a distinct pattern between 1980 and 1990 (-8,847).

Where did the regional population go? Statistically it appeared that the most recent loss of 8,847 in the four smaller counties migrated to Polk and Story Counties.

Story County grew at a moderate rate over the past 50 years, up in each of the following periods: 1940-50 = 10,860; 1950-60 = 5,033; 1960-70 = 23,278; 1970-80 = 9,543; and 1980-90 = 1,926. While the growth was sustained it was at a decreasing rate after 1970. The rate was 15.2 percent for 1970-80 and 2.7 percent for 1980-90.

Year	City of Ames	Story County	6-County Region
1940	12,555	33,434	304,441
1950*	22,898	44,294	331,638
1960	27,003	49,327	373,955
1970	39,505	62,783	457,061
1980	45,775	72,326	482,970
1990	47,198	74,252	500,019

**Change in Census reporting procedures to count students at place of residence.*

Source: U.S. Census, 1940, 1950, 1960, 1970, 1980, and 1990

The City of Ames also grew at a moderate rate over the past 50 years. Population was up in each of the following periods: 1940-50 = 10,343; 1950-60 = 4,105; 1960-70 = 12,502; 1970-80 = 6,270; and, 1980-90 = 1,423. Like the County's, the City's growth was sustained but at a decreasing rate after 1970. The rate was 15.9 percent for 1970-80 and 3.1 percent for 1980-90.

During the 1960-90 period, growth in total student enrollment at Iowa State University paralleled growth in total population in Story County and the City of Ames. Between 1960 and 1970, the increase of 23,278 in the County and 12,502 in the City compared to an increase of 9,894 in ISU enrollment. Between 1970 and 1980, the increase of 9,543 in the County and 6,270 in the City compared to an increase of 4,648 in ISU-enrollment. And between 1980 and 1990, the increase 1,926 in the County and 1,423 in the City compared to an increase of 1,071 in ISU-enrollment.

Not all ISU-students live in Story County or the City of Ames; however, when population trends for the County and the City are compared with ISU student enrollment trends for the same periods it is apparent that the University contributed at least half of the growth since 1970. When the comparison is extended to the other four counties in the region it is apparent that other factors were contributing to a net loss in population for the four.

Table 2	
ENROLLMENT TRENDS	
Iowa State University	
Fall 1960-1993	
Fall	Total Enrollment
1960	9,726
1970	19,620
1980	24,268
1985	26,529
1990	25,339
1993	25,112

Source: Iowa State University, January, 1994

Population Age Trends. Between 1970 and 1990, trends in population age for the six-county region reflected distinct shifts for some age groups. The following is a summary of 20-year changes.

- The number of persons under 5 years fluctuated in the region. The number decreased by 3,735 between 1970 and 1980, then increased by 1,291 between 1980 and 1990. The four smaller counties showed a decline each of the decennial periods.
- The number of persons from 5 to 19 years decreased in the region by 29,706 or 22.2 percent. Every county declined.

- The number of persons from 20 to 29 years fluctuated in the region. The number increased by 26,899 between 1970 and 1980, then decreased by 9,074 between 1980 and 1990. Every county declined during the past ten years.
- The number of persons from 30 to 44 years in the region increased by 43,323 or 58.6 percent. Every county gained.
- The number of persons from 45 to 64 years in the region decreased by 477 or 0.5 percent. In general, all counties reflected a relatively stable pattern.
- The number of persons 65 years and older in the region increased by 14, 473 or 29.7 percent. Every county increased.

Age change in the region reflected an overall aging population. The number of school age children declined. The number of child-bearing age persons declined in the younger half of the group while increasing in the older half. The number of older adults increased. The long-term implications for the overall region are fewer people resulting from fewer births.

Age	1970	1980	1990
Under 5	38,030	34,295	35,586
5 to 19	133,606	116,172	103,894
20 to 29	73,150	100,049	90,975
30 to 44	73,975	89,261	117,298
45 to 64	89,664	88,780	89,187
65 & over	48,636	54,089	63,079
TOTAL	457061	482646	500,019

The City of Ames reflected a similar aging characteristic to the region. Between 1980 and 1990, the number of persons under 5 years increased by 110 while the number between 5 and 19 decreased by 1,224. For the same period the number of persons between 20 and 29 increased by 1,224 due to an increase in student enrollment at ISU. All age groups 30 and over increased between 1980 and 1990. The 30 to 44 group increased by 891 while share of the total population went up from 15.4 to 16.9 percent. The 45 to 64 group increased by 471, up from 10.3 to 10.9 percent of the total. The 65 and over group increased by 641 while its share of the total went up from 5.6 to 6.8 percent.

Table 4 POPULATION AGE TRENDS City of Ames 1980-1990				
Age	1980		1990	
	No.	% of Total	No.	% of Total
Under 5	2,276	4.9	2,386	5.1
5 to 19	11,250	24.6	10,026	21.2
20 to 29	17,915	39.2	18,449	39.1
30 to 44	7,063	15.4	7,954	16.9
45-64	4,699	10.3	5,170	10.9
65 & over	2,572	5.6	3,213	6.8
TOTAL	45775	100	47198	100

Population Location. Between 1970 and 1990, there was a distinct shift of population from some older developed portions of the City to the less developed areas surrounding. Suburbanization of Ames involved an initial expansion to the north and south.

Between 1970 and 1980, there was an increase of 1,871 persons in the area north of 24th Street with a concurrent decrease of 1,287 persons in the area between 24th Street and Downtown. During the same period there was an increase of 622 persons in the area south of Downtown. The area west of Squaw Creek reflected the highest change for the period with an increase of 5,002 persons of which approximately 2,000 were additional students at ISU.

Between 1980 and 1990, the area north of 24th Street reflected little change while the area between 24th Street and Downtown experienced a further decrease of 421 persons. At the same time, the area south of Downtown further increased by 323 persons. The area west of Squaw Creek further increased by 774 of which approximately 300 were additional students at ISU. Concurrently, there was an increase of 842 persons south of U.S. Highway 30.

Since 1990, growth has re-emerged in the area north of 24th Street. Approximately 300 persons have moved into the area. Growth is also continuing to occur to the west and south.

Population Projections. Population projections assume that ISU enrollment will remain relatively stable. Projections for the City of Ames do not include additional annexation.

The six-county region is projected to continue in population growth from 500,019 in 1990 to 606,900 by 2030. The net increase is 106,881 or 21.4 percent. The rate of growth is projected at 0.4 to 0.5 percent annually. The rate approximates that of the past ten years.

The dominant factor in the region's growth is Polk County bolstered by the stability of Story County and the City of Ames. The four smaller counties in the region are projected to continue in their population loss.

Story County is projected to continue in population growth from 74,252 in 1990 to 93,800 by 2030. The net increase is 19,548 or 26.3 percent. The rate of growth is projected at 0.5 to 0.6 percent annually which is slightly higher than the rate for the past ten years.

The City of Ames is projected to continue in population growth from 47,198 in 1990 to a target population of 59,600 by 2030. The net increase in target population is 12,402 or 26.3. The rate of growth is projected at 0.5 to 0.6 percent annually which is slightly higher than the rate for the past ten years.

Year	City of Ames	Story County	6-County Region
1990	47,198	74,252	500,019
1995	48,550	76,180	512,500
2000	49,900	78,400	525,000
2005	51,600	80,700	538,100
2010	53,600	83,100	551,200
2015	55,600	85,600	564,600
2020	57,600	88,100	578,000
2030	59,600	93,800	606,900

While the target population projection has the highest probability, deviations are provided to give the maximum high and low population growth in the City of Ames. The high is based on an associated increase in Polk County's growth while the low is based on a decrease in student enrollment at ISU. The population of Ames is impacted by ISU-enrollment. While the University is projecting a slight decrease, at least over the next ten years, alternative methods of instruction such as distance learning could further reduce on-campus enrollment.

Table 6			
POPULATION PROJECTIONS			
DEVIATIONS			
1990-2030			
Year	High	Target	Low
1990	47,198	47,198	47,198
1995	49,690	48,550	48,501
2000	51,900	49,900	48,850
2005	53,600	51,600	49,700
2010	55,600	53,600	50,550
2015	57,600	55,600	51,450
2020	59,600	57,600	52,350
2030	61,600	59,600	54,250

Source: RM Plan Group, Nashville, April 1994

The factors involved in continued population growth for the City of Ames include both natural and in-migration change. Although the number of children decreased slightly between 1980 and 1990, the number of persons of child-bearing age increased. If recent fertility rates continue and retention of young families is high a natural increase in population should occur.

Historical increases in population through in-migration have been largely based on the University's attraction. While University-related in-migration appears to be slowing (and possibly stabilizing or reversing slightly), recent employment increases in the private wage sector are attracting more persons. Although not easily identified, a third factor in increasing in-migration is the number of persons choosing to live in Ames even though they may work in other areas.

HOUSING

Total Housing Units. As of 1990, the City of Ames contained 16,058 housing units. The total represented an increase of 2,663 units over the total of 13,395 units in 1980.

Single-family units represented the largest type at 7,818 units or 48.6 percent of the total in 1990. While the number of single-family units increased by 649, its share of the total fell from the 53.6 percent share in 1980.

Multi-family and two-family made real gains and increased in share collectively between 1980 and 1990. The number went up by 1,807 while the share increased from 41.9 to 46.2 percent. Of the total units gained during the ten-year period, multi-family accounted for 67.9 percent. The disproportionate gain in multi-family was largely a response to the increase in student enrollment at ISU combined with an increase in demand for off-campus housing. The shift of students into off-campus housing created comparable vacancies in University owned housing.

Mobile homes made little gain between 1980 and 1990. The number increased by 50 while the share decreased from 4.5 to 4.1 percent.

Type	1980		1990	
	Units	% of Total	Units	% of Total
1unit detached	6,218	46.5	6,800	42.3
1unit attaced	951	7.1	1,018	6.3
2-4 units	1,674	12.5	2,733	17
5-9 units	1,451	10.8	1,543	9.6
10 + units	2,496	18.6	3,152	19.6
Mobile home	605	4.5	658	4.1
Other	-	0	154	1.1
Total	13,395	100	16,058	100

Source: U.S. Census, 1980 & 1990

Housing Tenure. Concurrent with the increase in multi-family between 1980 and 1990 was an increase in renter occupancy. The number of renters increased by 1,284 while the share of the total increased from 50.3 to 54.3 percent.

The number of owner-occupied units increased by 314 between 1980 and 1990. Owner-occupied units' share of the total tenure decreased from 44.4 to 42.9 percent during the ten-year period.

Vacancies were 792 or 5.3 percent in 1980 compared to 445 or 2.8 percent in 1990. The low vacancy rate currently is indicative of the tight housing market.

Table 8 HOUSING TENURE City of Ames 1980-1990		
TENURE	1980	1990
Number Owner Occupied	6,571	6,885
% Owner Occupied	44.4	42.9
Number Renter Occupied	7,444	8,728
% Renter Occupied	50.3	54.3
Number Vacant	792	445
% Vacant	5.3	2.8
Total Units	14,807	16,058

Source: U.S. Census, 1980 & 1990

Housing Projections. Housing projections assume that ISU enrollment will remain relatively stable. Projections for the City of Ames do not include additional annexation.

The total number of housing units in Story County is projected to increase from 26,847 in 1990 to 35,800 by the year 2030. The increase reflects a constant six percent vacancy rate. Because the current vacancy rate is low, projections for the year 1995 reflect a catch-up that includes growth and a six percent vacancy rate.

The total number of housing units in the City of Ames is projected to increase from 16,051 in 1990 to 23,000 by the year 2030. The increase reflects a constant six percent vacancy rate.

The projected increase of 1,699 units between 1990 and 1995 includes growth and bringing excess capacity to six percent of all housing units. These projections are not adjusted for any additions or deletions for ISU-owned student housing.

Year	City of Ames	Story County
1990	16,051	26,847
1995	17,750	29,000
2000	18,300	29,900
2005	19,200	30,800
2010	20,300	31,700
2015	21,050	32,600
2020	21,800	33,600
2030	23,000	35,800

It is anticipated that multi-family units will increase at a higher rate than single-family through 1995 due to market trends. Multi-family is projected to account for 1,140 (67 percent) of the 1,699 units required between 1990 and 1995. Based on market demand, multi-family and single-family should account for 55 and 44 percent respectively of all new housing units after 1995. Mobile homes should account for the additional 1 percent of new units.

The projected increase in housing for the City of Ames is based on projected population growth. The trend toward the formation of smaller households will also increase the demand for more housing. A higher vacancy rate (5 to 6 percent is an accepted level in most urban markets) is important to increasing housing choice and possibly lowering costs. The ability to find starter housing and to move up in housing within the community is currently limited. Deterioration of structures is minimal which tends to maintain the higher values.

CONSTRUCTION

Residential Construction. Between 1970 and 1993, the number of residential units increased by 6,539 or an annual average of 272.5 units. Single-family accounted for 2,426 or 37.1 percent of the total units added. Two-family accounted for 450 or 6.9 percent of the total. Multi-family accounted for 3,665 or 56 percent of the total.

Over 47 percent of all two-family and multi-family units existing in 1993 were constructed during the 1970-1993 period. In contrast, approximately 29 percent of all single-family existing in 1993 were constructed during the past 24 years. Stated another way, Ames has a relatively young housing stock. One out of two two-family and multi-family units is less than 25 years old. Nearly one out of three single-family units is less than 25 years old.

When residential construction trends are broken-down on a decennial basis, distinct patterns of growth are apparent. The 1970-79 period increased by 3,569 total units. The three highest years for production during the past 24 years occurred in 1976 (479 units), 1977 (585 units) and 1978 (599 units).

The 1980-89 period increased by 1,745 total units. Three of the lowest years for production during the past 24 years occurred during this period - 1981 (20 units), 1982 (51 units) and 1986 (64 units). The years 1981 and 1982 were associated with a national recession.

The 1990-93 period increased by 1,225 total units. While the current period is relatively active, it should be viewed as a catch-up from the preceding period.

Table 10
RESIDENTIAL CONSTRUCTION TRENDS
City of Ames
1970-1993

Year	Single-Family	Two-Family	Multi-Family	Total Units
1970	175	7(14)	6(118)	307
1971	150	10(20)	6(80)	250
1972	135	4(8)	11(296)	439
1973	83	7(14)	6(160)	257
1974	75	4(8)	2(28)	111
1975	133	17(34)	6(96)	263
1976	210	26(52)	12(217)	479
1977	163	36(72)	34(350)	585
1978	218	31(62)	25(319)	599
1979	102	20(40)	15(137)	279
1980	40	6(12)	14(144)	196
1981	20	0(0)	0(0)	20
1982	41	5(10)	0(0)	51
1983	51	20(40)	8(254)	345
1984	77	6(12)	9(291)	380
1985	60	3(6)	19(208)	274
1986	36	3(6)	4(22)	64
1987	47	3(6)	23(173)	226
1988	71	2(4)	1(16)	91
1989	64	1(2)	3(34)	98
1990	75	2(4)	5(126)	205
1991	100	4(8)	10(174)	282
1992	160	3(6)	17(186)	352
1993	140	5(10)	17(236)	386
TOTAL	2426	225(450)	253(3665)	6539

Source: Building Inspections, City of Ames, April 1994

Non-Residential Construction. Between 1970 and 1993, the number of non-residential permits increased by 574 or an annual average of 23.9 starts. Out of the 24 years, 12 years have been at or above the average indicating relative stability within non-residential activity.

When non-residential construction trends are broken-down on an decennial basis, the relative stability is still apparent. The 1970-79 period increased by 239 while the 1980-89 period increased by 230. The 1990-93 period increased by 105 which was slightly up from the preceding periods based on an annual average.

The most recent trends reflected an increase that was, in part, precipitated by expansion of major retail establishments within Ames. The trends suggest a regionalization of Ames' economy. The recent construction of large single-occupied retail stores (Sam's, K-Mart) are examples of this regionalization.

Table 11 NON-RESIDENTIAL CONSTRUCTION TRENDS City of Ames 1970-1993	
Year	Non-Residential Buildings & Add-ons
1970	22
1971	19
1972	29
1973	25
1974	22
1975	24
1976	21
1977	16
1978	41
1979	20
1980	23
1981	11
1982	18
1983	13
1984	11
1985	18
1986	43
1987	28
1988	42
1989	23
1990	29
1991	18
1992	30
1993	28
TOTAL	574

Source: Building Inspections, City of Ames, April 1994

EMPLOYMENT

Total Employment Trends. (Private Wages) Total employment for private wages increased within the six-county region between 1973 and 1991. For the 12-year period 1973-1985, the number increased from 156,348 to 207,893 a total gain of 51,545 or 4,295 per year. For the 6-year period 1985-1991, the number increased from 207,893 to 255,153, a total gain of 47,260 or 7,877 per year.

Polk County was the largest employment provider within the six-county region with 76.8 percent of the total in 1973, 78.2 percent in 1985 and 78.1 percent in 1991. The County contained the following shares of the region's employment by type of industry in 1991: Agriculture = 83.5 percent; Mining = 50.5 percent; Construction = 84.3 percent; Manufacturing = 66.5 percent; Transportation and Utilities = 88.2 percent; Wholesale Trade = 80.8 percent; Retail Trade = 72.5 percent; Finance = 93.7 percent; Services = 77.9 percent; and, Unclassified = 13.2 percent. Between 1973 and 1991, Polk County increased its share of each industry within the region except for Manufacturing. The County had a net loss of 2,332 jobs in manufacturing compared to a net gain of 1,687 in the remainder of the region.

Story County was the second largest employment provider within the six-county region with 7.5 percent of the total in 1973, 8.8 percent in 1985 and 9.5 percent in 1991. The County contained the following shares of the region's employment by type of industry in 1991: Agriculture = 6.7 percent; Mining = 12.5 percent; Construction = 5.1 percent; Manufacturing = 7.6 percent; Transportation and Utilities = 4.4 percent; Wholesale Trade = 5.3 percent; Retail Trade = 14.9 percent; Finance = 2.9 percent; Services = 11.2 percent; and, Unclassified = 82.9 percent. Since 1973, Story County increased its share of the region's total in Manufacturing, Retail Trade and Services.

Current Employment - City of Ames. Of the 47,198 persons living in the City of Ames in 1990, 25,307 or 53.6 percent were employed. Private wage and salary workers constituted 13,690 or 54.1 percent of the total employed. Self-employed workers constituted 1,114 or 4.4 percent. Unpaid family workers constituted 118 or 0.5 percent. Government workers constituted the remaining 10,385* or 41.0 percent of the total employed.

In comparison with Story County, the City of Ames included approximately 56 percent of all private wage workers and 95 percent of all governmental workers. The higher percentage of government workers in the City was the result of ISU's presence. ISU provided annual employment for approximately 8,200 workers and another 2,800 workers who fell into other types of employment.

Table 12	
CLASS OF WORKER	
City of Ames	
1990	
Working persons 16 yrs. & over	25,307
Private wage & salary workers	13,690
Government workers	10,385
Local	(1,704)
State	(7,808)
Federal	(873)
Self-employed workers	1,114
Unpaid family workers	118

Based on the type of industry, employment in the City of Ames in 1990 was comprised of the following: Government-Related Services = 9,933* or 39.3 percent; All Other Services = 5,330 or 21.0 percent; Retail Trade = 5,114 or 20.2 percent; Manufacturing = 1,301 or 5.1 percent; Finance, Insurance and Real Estate = 978 or 3.9 percent; Construction = 805 or 3.2 percent; Transportation and Utilities = 778 or 3.1 percent; Agriculture = 632 or 2.5 percent; Wholesale Trade = 399 or 1.6 percent; and Mining = 37 or 0.1 percent.

- *A discrepancy was reported in the U.S. Census information for 1990. The figures have been retained as reported.*

Table 13	
EMPLOYMENT BY INDUSTRY	
City of Ames	
1990	
Working persons 16 yrs. & over	25,307
Agriculture, forestry & fisheries	632
Mining	37
Construction	805
Manufacturing (nondurable goods)	611
Manufacturing (durable goods)	690
Transportation	483
Communications & other public utility	295
Wholesale trade	399
Retail trade	5,114
Finance, insurance & real estate	978
Business & repair services	630
Personal services	572
Entertainment & recreation services	408
Health services	1,467
Educational services	8,823
Other professional & related services	2,253
Public administration	1,110

The 12 largest employers in Ames provided a total of 15,562 jobs in 1993. Iowa State University totaled 11,000 followed by the Medical Center at 1,025, and the Iowa Department of Transportation at 850. The remaining employers were all classified under 500 employees.

Table 14 LARGEST EMPLOYERS City of Ames 1993	
Name	No. of Employees
Iowa State University	11,000
Medical Center	1,025
Iowa DOT	850
Ames Public Schools	635
City of Ames	478
Sunstrand-Sauer	471
Ames Lab	400
3M	379
National Animal Center	300
National Vet Lab	250
Hach Company	204
Daily Tribune	130
Carriage House	75
TOTAL	16197

Employment Projections - City of Ames. It is assumed that employees at Iowa State University will remain relatively stable over the next ten years due to the current stability of student enrollment. There is also the possibility that ISU-employment could go down through privatization. It is also assumed that other types of public employment will remain relatively stable.

Total employment is projected to increase by 8,393 from the 25,307 in 1980 to 33,700 in 2030. The most significant changes occur in Services which will increase by 3,570 and Retail Trade which will increase by 2,086 during the 40-year planning period. The changes in Services and Retail are partly the result of the regionalization of Ames' economy. Agriculture and Mining are the only industries that are expected to decrease. Both are due to the changing urban character of the City.

	1990	2010	2030
Government	9,933	10,150	10,500
Services	5,330	6,700	8,900
Retail	5,114	6,200	7,200
Manufacturing	1,301	1,800	2,400
Finance, etc.	978	1,150	1,800
Construction	805	950	1,100
Transp./Utilities	778	900	1,100
Agriculture	632	300	100
Wholesale trade	399	500	600
Mining	37	0	0
TOTAL	25307	28650	33700

Source: RM Plan Group, Nashville, April 1994

GROWTH DETERMINANTS

Economic Factors. The statistics reflect that Ames has made and can continue to make real gains as well as increase its share within the region's economy. With proper planning, infrastructure and community support, Ames can attract additional employment and residential opportunities while enhancing its educational center base.

In guiding the community's growth there are four economic factors to consider:

- Enrollment growth at ISU has leveled and will remain so for several years based on the University's projections. Additional economic gains from ISU's presence will come from new program and research initiatives rather than traditional student gains.
- Population and economic growth within the region will be associated more with Polk and Story Counties. The remaining four counties in the region - Boone, Hamilton, Hardin and Marshall - are experiencing a decline in population.
- A population base of 50,000 and over is considered by urban economists to have a catalytic effect in the economy and its self-sufficiency. In nearing a population of 50,000, Ames is becoming a regional center with an expanding market based on the introduction of regional retailers recently. Similarly health care services are increasing with regionalization. Proportionally higher increases in Retail Trade and Services will further diversify the economy of Ames.
- Within the greater regional perspective Ames will maintain its status as the educational and cultural center. People will seek Ames out for its quality of life.