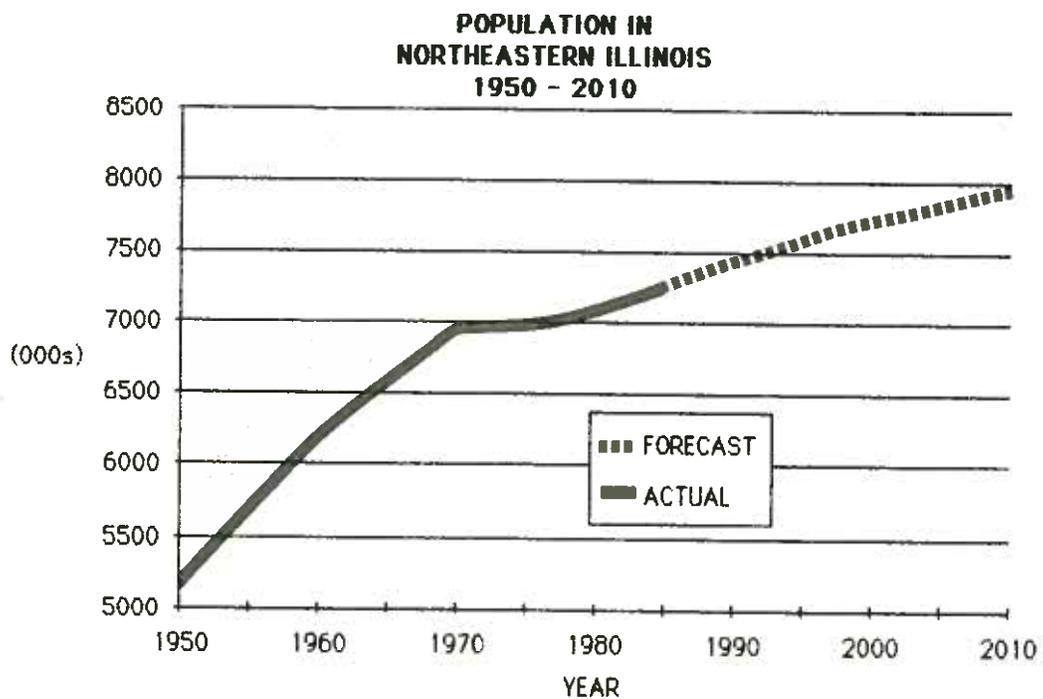


POPULATION IN NORTHEASTERN ILLINOIS:

A Look Toward 2010



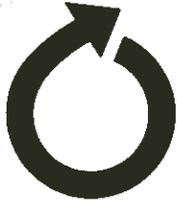


Northeastern Illinois is diverse in its land use and complex in its political structure. It has some of the most productive farms on earth — also one of the world's greatest cities. It contains 3,714 square miles of land and 38 square miles of water. It is home to 7 million people, organized in more than 1,250 units of government.

In 1957, following a decade of rapid urbanization in the Chicago suburban area, the Illinois General Assembly created the Northeastern Illinois Planning Commission (NIPC) to conduct comprehensive planning for the six-county greater Chicago region.

The Commission has three statutory charges: conduct research and collect data for planning; assist local government; and prepare comprehensive plans and policies to guide the development of the counties of Cook, DuPage, Kane, Lake, McHenry and Will.

By necessity, regional planning deals with general development policies not local land use detail. NIPC supports and coordinates county and municipal planning. The Commission has advisory powers only and relies upon voluntary compliance with its plans and policies.



northeastern illinois planning commission

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POPULATION IN NORTHEASTERN ILLINOIS:

A Look Toward 2010

PRELIMINARY
Regional
and Alternative
County Population and Household Forecasts

September 1987

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I. Introduction

On July 2, 1986, the Commission's Planning and Policy Development Committee endorsed a revised set of year 2005 population and household forecasts for northeastern Illinois counties and municipalities (see NIPC Data Bulletin 87-2). Since that date the region's transportation planning community has determined that 2010 would be a more appropriate year for an update of the long range transportation systems development plan. This shift provides the Commission with the opportunities, first, to reevaluate the earlier municipal forecasts in response to the continuing commentary from local units of governments (including the recent extensive period of review by municipalities and townships in Will County), and second, to consider newer demographic data and emerging development patterns.

As a first step in responding to these opportunities, the Commission staff has developed a single regional (i.e., six county total including the counties of Cook, DuPage, Kane, Lake, McHenry, and Will) population "target" for 2010 as well as alternative county population and household forecasts. This document summarizes the results of those efforts.

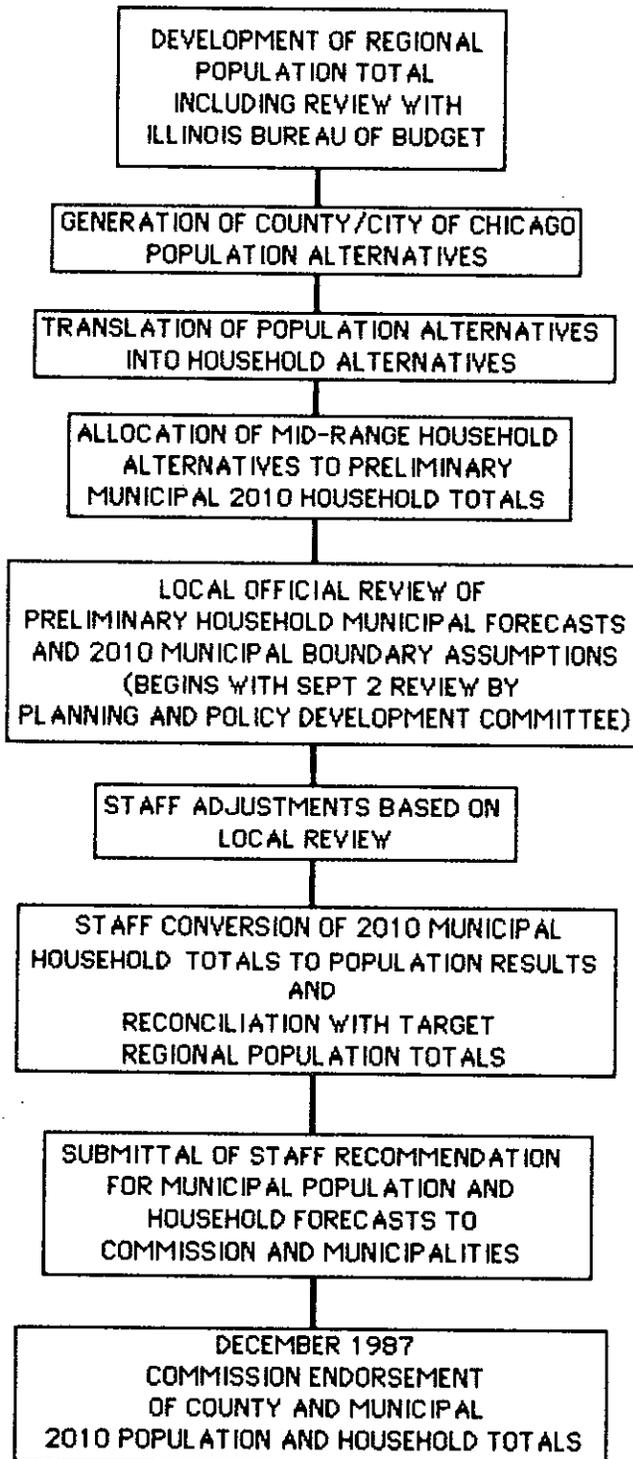
II. Summary of Process

The initial step in the revision of the forecasts was the development of a regional population total for 2010. Independent of the projection process undertaken by the Illinois Bureau of the Budget (IBOB), staff generated a regional population total and age distribution for each year from 1980 through 2010. The 2010 population total of 8,008,000 and the assumptions used to derive it were then provided to IBOB for review. Although slightly higher than their recommended 2010 total of 7,986,000, the NIPC forecast was endorsed by IBOB staff.

Next, high and low 2010 population forecast alternatives for the city of Chicago and each suburban county were developed. Because these alternatives produced a regional total that was either much lower or substantially higher than the "target" total, a mid range alternative for each county and the city of Chicago was selected. Using assumptions of a continuing but modest decline in the average number of persons residing in households, these alternatives were then translated into household forecasts.

In Cook, Kane, Lake, McHenry, and Will counties, the mid range county level household forecast was allocated across the quartersections within each county and then aggregated to

DIAGRAM 1
SUMMARY OF 1987
POPULATION AND HOUSEHOLD
FORECAST PROCESS



areas encompassing assumed municipal boundaries in 2010. In DuPage County, the sub county results are being generated by the County's Development Department.

On September 2, 1987, the staff was authorized by the Commission's Planning and Policy Development Committee to release the preliminary municipal household results for communities outside of DuPage County for review by local officials. This information is presented in a NIPC memorandum entitled "Preliminary Municipal Household Forecasts 1980 to 2010" and is available upon request from the Research Services Department.

In October, based upon the comments received by that time, NIPC staff will adjust the household forecasts, convert results to population and reconcile the derived population figures with the "target" regional total. This staff recommendation will then be presented to the Commission for endorsement in December 1987. This process, from the development of the regional total to the Commission endorsement, is summarized in Diagram 1.

III. Regional Population and Household Totals

Table 1 presents the Census-enumerated regional, county, and city of Chicago population figures for 1950 through 1980, the Census Federal-State Cooperative Program estimates for 1985

TABLE 1

POPULATION AND HOUSEHOLD FORECASTS
IN NORTHEASTERN ILLINOIS

POPULATION	1950	1960	1970	1980	1985*	2005 AS ENDORSED JULY '86	...PRELIMINARY ALTERNATIVES FOR REVIEW...				
							LOW		HIGH		
							2005	2010	2005	2010	MID 2010
COOK COUNTY	4508792	5129725	5493766	5253655	5302000	5384600	5251000	5179000	5536000	5627000	5378000
CITY OF CHICAGO	3620962	3550404	3369357	3005072	3007600	2954100	2889000	2840000	3124000	3208000	3003000
SUBURBAN COOK	887830	1579321	2124409	2248594	2294400	2430500	2362000	2339000	2412000	2419000	2375000
DUPAGE COUNTY	154599	313459	487966	658835	715800	920000	910000	932000	955000	1010000	940000
KANE COUNTY	150388	208246	251005	278405	298700	406000	381000	400000	408000	443000	440000
LAKE COUNTY	179097	293656	382638	440372	465300	590500	550000	568000	576000	609000	580000
MCHENRY COUNTY	50656	84210	111555	147897	159000	220000	204000	213000	213000	227000	220000
WILL COUNTY	134336	191617	247825	324460	333700	466200	413000	434000	443000	475000	450000
N.E. ILLINOIS	5177868	6220913	6974755	7103624	7274500	7987300	7709000	7726000	8131000	8391000	8008000

HOUSEHOLDS	1950	1960	1970	1980	1985	2005 AS ENDORSED JULY '86	...PRELIMINARY ALTERNATIVES FOR REVIEW...				
							LOW		HIGH		
							2005	2010	2005	2010	MID 2010
COOK COUNTY	1335771	1600499	1766035	1879117	NA	2121700	NA	2083200	NA	2266300	2164500
CITY OF CHICAGO	1087258	1157409	1137854	1093409	NA	1167700	NA	1141700	NA	1292100	1208300
SUBURBAN COOK	248513	443090	628181	785710	NA	954900	NA	941500	NA	974200	956200
DUPAGE COUNTY	42944	84147	136251	222014	NA	335200	NA	345100	NA	374400	348100
KANE COUNTY	42425	58998	74642	93729	NA	155400	NA	157200	NA	174300	173100
LAKE COUNTY	46844	76547	102947	139715	NA	217500	NA	215300	NA	231600	220100
MCHENRY COUNTY	14858	24218	33083	49078	NA	82000	NA	81300	NA	86700	84000
WILL COUNTY	37220	53508	70688	103071	NA	167200	NA	159300	NA	174600	165300
N.E. ILLINOIS	1520062	1897917	2183646	2486724	NA	3079000	NA	3041400	NA	3307900	3155100

*U.S. CENSUS BUREAU IS SOURCE OF 1985 COUNTY ESTIMATES; CHICAGO AND SUBURBAN COOK ESTIMATES FOR 1985 BASED ON ESTIMATES PREPARED BY THE DEPT. OF PLANNING, CITY OF CHICAGO

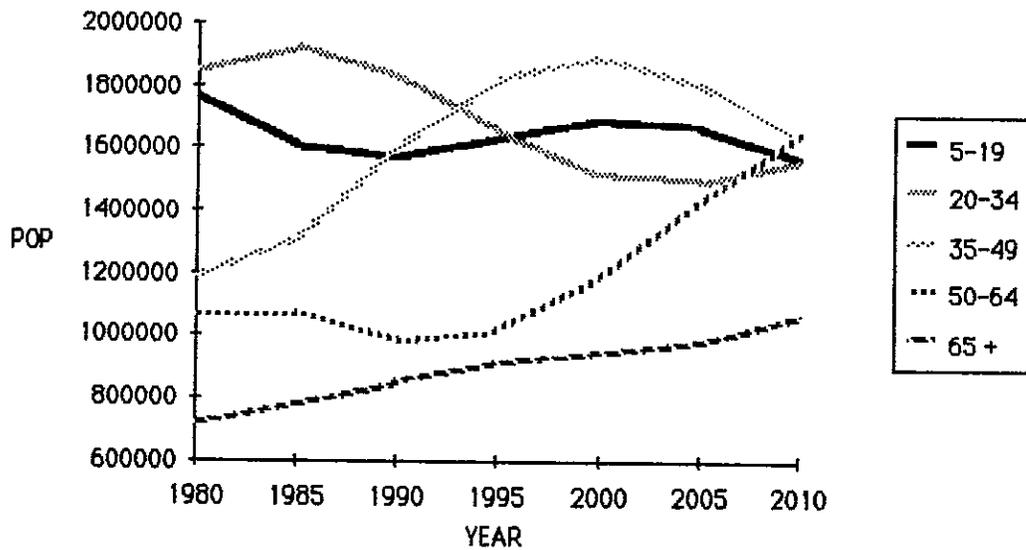
(with the Chicago - suburban Cook splits provided courtesy of the Department of Planning, City of Chicago), the 2005 forecasts as endorsed by the Commission in 1986, high and low preliminary alternatives for 2005, and high, mid, and low alternatives for 2010. The regional population total shown as the mid alternative for 2010 represents the "target" total agreed to by the NIPC staff and the Illinois Bureau of the Budget. Although the "target" result for the year 2010 exceeds the previous NIPC forecasts for 2005 by nearly 21,000 people, the 2005 forecast associated with the "target" is only 7,862,500, or approximately 125,000 less than the previously endorsed result for the same year. The "target" forecast for the regional population total and its age distribution is presented in Table 2. Results are shown for each five year interval from 1980 to 2010.

Diagram 2 summarizes the expected changes in populations in selected age groupings for the region as a whole, as indicated in the mid range, or "target," alternative. Of particular interest, are the changes resulting from the aging of the baby boom group. The peak of the baby boom births was 1957; by 1980 this peak had reached 23 years of age, and while there is some questions about the definition of the baby boom group, the "boomers" ranged from 33 to 16 years old. As this peak moves into and through the 30's, the forecast shows a large decline in the number of individuals aged 20-34. Between 1985 and 2005, the number of individuals

TABLE 2
 PRELIMINARY REGIONAL POPULATION FORECAST
 FOR THE SIX COUNTY NORTHEASTERN ILLINOIS AREA
 INCLUDING COOK, DUPAGE, KANE, LAKE, MCHENRY AND WILL COUNTIES
 (SEPTEMBER 1987)

AGE	1980	1985	1990	1995	2000	2005	2010
0- 4	524749	596827	618319	571503	506569	481876	507336
5- 9	531088	513128	553270	588083	572130	519631	482383
10-14	581499	517344	504128	543591	581633	570674	520409
15-19	651444	575037	511522	498969	536670	575612	568921
20-24	655170	614627	546153	491309	485023	525729	568662
25-29	633492	652350	607926	537586	484496	479956	520124
30-34	563436	656199	676326	627390	549790	490749	480912
35-39	452534	553742	643426	667433	622038	545607	487318
40-44	378557	439574	540764	628993	655301	613818	540392
45-49	354310	357265	422118	525535	614349	642718	604801
50-54	381728	339727	338825	402330	506003	595762	626576
55-59	371573	356975	323356	322361	382599	483573	572661
60-64	311485	327398	318983	294872	297658	356174	454403
65-69	254397	268033	282275	278351	262738	269856	325954
70-74	186151	201533	219086	233897	234500	227445	239637
75-79	131375	143509	158518	175986	188650	189614	187726
80-84	80867	89112	99514	113315	132343	146287	146187
85-89	41413	57387	70048	82863	96483	116764	136922
90+	18356	14761	17963	22019	26169	30618	36843
TOTAL	7103624	7274528	7452520	7606386	7735142	7862473	8008167

DIAGRAM 2
 N.E. ILLINOIS POPULATION
 BY SELECTED AGES



in that age group will decline by 427,000, or 22 percent. The numbers of individuals in the group aged 35-49, will increase dramatically through the end of the century, and, after 1995, the number of individuals aged 50-64 will expand. By the end of the forecast span, the peak of the baby boom will be 53 years of age with the oldest members of the group being 63 years old. In spite of the fact that the boom group will not have reached the senior years by 2010, the population aged 65 and over will show continuous growth through the 1980 to 2010 span. During this period this group should increase by 361,000, or 34%.

The mid range, or "target" total, for the northeastern Illinois region was generated through the use of a cohort-component model (as described in Techniques for Making Population Projections, Donald Bogue and Louis Rehling, University of Chicago, 1974). Very simply, this model starts with a population distributed by age and gender. To such base data, births by gender expected during the forecast period are added, deaths by age and gender are subtracted, and net migrants by age and gender are added in the case of net immigration and subtracted for net outmigration.

The fertility and mortality assumptions used in the model were derived from mid range assumptions developed by the Bureau of the Census in their Current Population Reports publication entitled Projections of the Population of the

United States by Age, Sex, and Race: 1983-2080 (P25, #952, May 1984).

Regionwide age and race specific birth rates were calculated by assuming throughout the forecast period the same constant relationship of local age and race specific rates to national rates as observed in 1980. The white and nonwhite total fertility rate (number of births per 1000 women during their childbearing ages) therefore remain slightly above the corresponding national rates during the entire 1980 to 2010 span. During this period the total fertility rate for whites in the region will increase from 1822.0 to 2015.6 while the rates for nonwhites will decrease from 2327.0 to 2260.3. Overall, the regional rate is assumed to increase from 1958.5 to 2110.6. Given the shifts in the age distribution, i.e., the declining number of individuals in the prime parenting years of 20-34, the total number of births will decline from 122,000 in 1980 to 105,000 in 2010.

Life expectancy for those born in northeastern Illinois in 2010 is assumed to be equivalent to life expectancies for the nation as a whole. The expected years of life remaining for white and nonwhite males and females born in the region in 1970, 1980 and projected for those born in 2010 are shown in Table 3. These assumptions imply that while whites will continue to live longer than their non-white male and female counterparts, the gap will narrow. The gap between males and

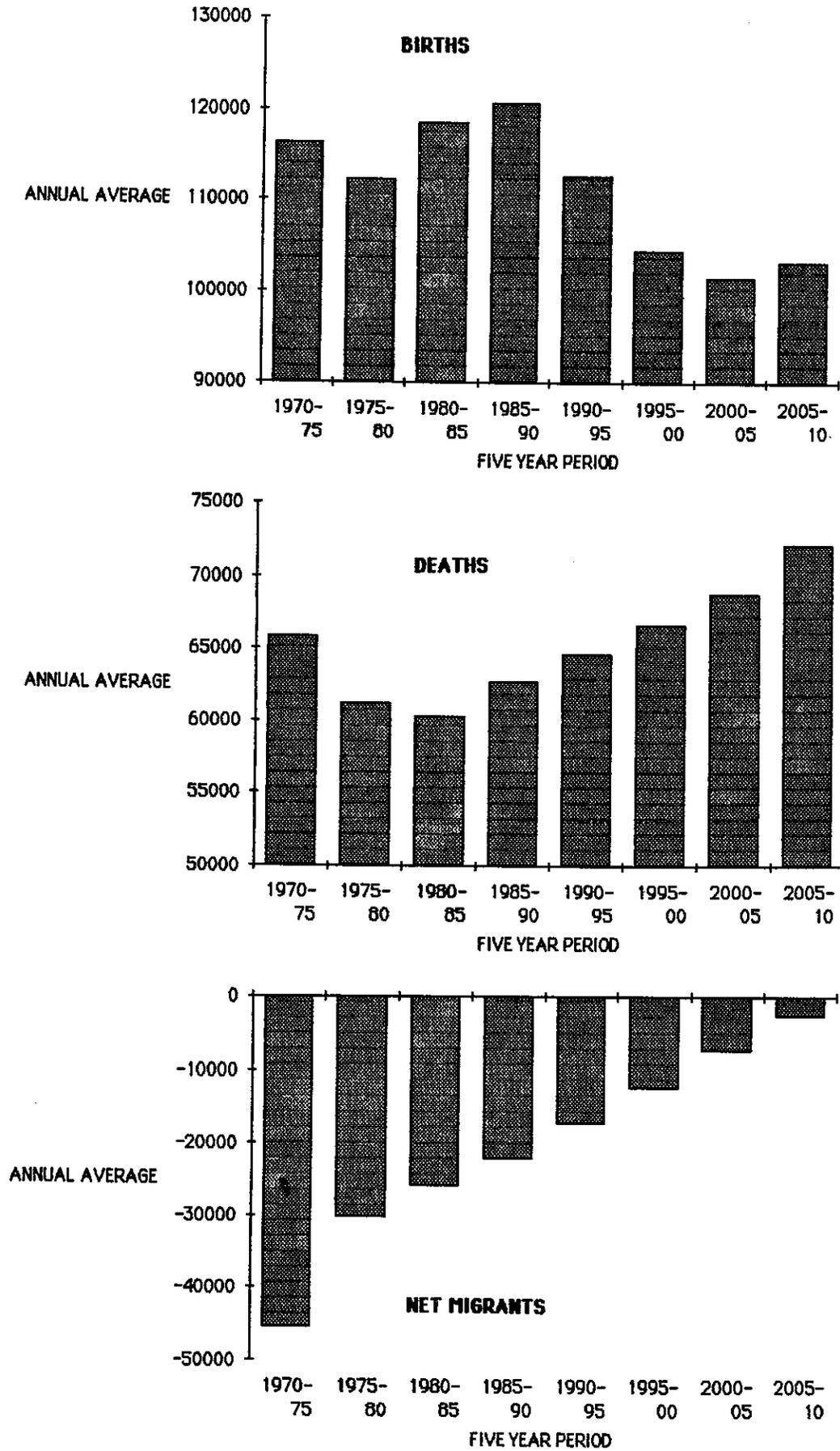
females, with females enjoying longer life spans, will grow slightly, however (it should be noted that there is some debate concerning the gender gap in mortality; we have chosen the assumption used by the Bureau of the Census). In spite of the assumed gains in life expectancy, the total number of deaths will increase from 61,000 in 1980 to 74,000 in 2010. This increase is, of course, the result of both an aging population and an increasingly larger population during the forecasted period.

The net migration assumptions used to generate the "target" regional population total are based on a continuation of a trend observed in the 1970 to 1985 span. In the 1970 to 1975 period, an average of 46,000 more people left the region than moved into the area each year. By the 1980 to 1985 span, this net outmigration had been reduced to an average of 26,000 annually. The forecasts assume that this trend will continue such that by the 2005 to 2010 interval, the net outmigration will have been reduced to only 2600 people per year. Within these net totals the age pattern of migration is assumed to be identical to the pattern measured during the 1970s. This implies, that in spite of the overall net outmigration expected during the forecast period, there should be a substantial immigration of individuals aged 25-34.

The regional household forecast was derived by assuming,

DIAGRAM 3

COMPONENTS OF POPULATION CHANGE IN NORTHEASTERN ILLINOIS



first, a continuation of the decline in average household size as projected in the previous forecasts, and second, a group quarters population (population residing outside of households, for example, individuals in barracks, jails, college dormitories, nursing homes, and institutions) in 2010 equal to 133,000 which is identical to the assumption used in the earlier 2005 forecast. The average household size in northeastern Illinois in 1980 was 2.80 persons per occupied housing unit. It is assumed that by 2010 this figure will reach 2.50. It must be noted that this assumption is higher than projections prepared by the Bureau of the Census. The Bureau, in their Current Population Reports document entitled Projections of the Number of Households and Families: 1986 to 2000 (P25, #986, May 1986), projects household sizes for the year 2000 ranging from 2.38 to 2.56. These results are consistent with our assumption of U.S. mid range fertility and mortality. The range in household size projected by the Census Bureau is due to alternative assumptions concerning the proportion of total households that are families and the proportion of these that are married couple families. An earlier NIPC staff analysis of the relationships between the changing age distribution, the propensity to reside in families, and household size concluded that while such low household sizes might be reached in many parts of the region, it was unlikely that the average over the entire region would be below 2.5. This earlier analysis is the basis for the assumption selected here.

IV. County and City of Chicago Alternatives

The high and low county/city of Chicago alternatives were generated through the use of the same cohort-component model described above. These results are presented in Table 1. The mid range alternative presented in Table 1 was derived by, first, averaging the high and low alternatives, and then, reconciling the totals to the regional "target."

The fertility, mortality, and migration assumptions used to calculate the high and low alternatives are summarized in Table 3. The same birth and death rate assumptions were used in the high and low alternatives. Birth rates were derived through a procedure identical to that used for the regional assumptions. The relationships among the rates in each of the areas remains stable but the change in the absolute rates parallel the change in the mid range rates used in the U.S. projections. Life expectancies throughout northeastern Illinois, regardless of the county of birth, are identical. Thus the same improvements projected for the nation, apply across the region.

The differences between the alternatives are determined entirely by the migration assumptions. Initially, three alternative migration assumptions were generated. Based upon an analysis of estimated annual migration in the span from

TABLE 3

FERTILITY, MORTALITY AND MIGRATION ASSUMPTIONS
USED IN PREPARATION OF PRELIMINARY FORECAST ALTERNATIVES

IDENTICAL FERTILITY AND MORTALITY ASSUMPTIONS USED IN BOTH
LOW AND HIGH ALTERNATIVES

TOTAL FERTILITY RATES		(births per 1000 women during their lifetime)							
	CHICAGO	SUB	COOK	DUPAGE	KANE	LAKE	MCHENRY	WILL	TOTAL
WHITE									
1970	2390		2347	2423	2674	2604	2513	2501	2402
1980	1971		1645	1726	2267	1900	1996	2025	1822
2010	2168		1833	1926	2479	2093	2203	2220	2016
NON-WHITE									
1970	3120		3319	2619	3529	3189	NA	3671	3142
1980	2339		2186	1960	2466	2444	NA	2246	2327
2010	2258		2184	2040	2397	2406	NA	2193	2260

LIFE EXPECTANCY AT BIRTH (number of years of life remaining)

	WHITE		NON-WHITE		IDENTICAL LIFE EXPECTANCY ASSUMPTIONS ARE USED IN THE CITY OF CHICAGO AND BACH SUBURBAN COUNTY
	MALE	FEMALE	MALE	FEMALE	
1970	68.6	75.6	60.8	69.6	
1980	70.4	77.7	64.7	73.5	
2010	74.4	81.8	70.0	79.1	

NET MIGRATION ALTERNATIVES (figures represent annual averages calculated
over the indicated five year span)

	CHICAGO	SUB	COOK	DUPAGE	KANE	LAKE	MCHENRY	WILL	TOTAL
ESTIMATED ACTUAL									
1970-1975	-72412		11605	6684	505	559	2008	5100	-45557
1975-1980	-42206		-15660	17559	-718	3630	3536	3883	-30373
1980-1985	-24670		-4803	3648	768	84	816	-1529	-25685
LOW ALTERNATIVE									
1980-1985	-28928		-4236	4512	845	142	828	-1527	-28364
1985-1990	-28928		-4236	5459	761	136	743	-1527	-27593
1990-1995	-28928		-4236	4809	583	129	578	-1527	-28591
1995-2000	-28928		-4236	1605	375	113	416	-1527	-32182
2000-2005	-28928		-4236	0	198	80	257	-1527	-34155
2005-2010	-28928		-4236	0	58	33	89	-1527	-34511
HIGH ALTERNATIVE									
1980-1985	-28928		-4236	4512	845	142	828	-1527	-28364
1985-1990	-25990		-3688	4512	1083	448	828	-1058	-23865
1990-1995	-20155		-2607	4512	1553	1093	828	-222	-14998
1995-2000	-14365		-1060	4512	2038	1674	828	571	-5802
2000-2005	-8599		-516	4512	2539	2266	828	993	2023
2005-2010	-2861		0	4512	3095	2930	828	993	9497

1970 to 1985, these assumptions were constructed to represent (a) a continuation of trends, (b) migration that would generate population growth greater than suggested by trends, and (c) migration that would generate population growth less than would be suggested by trends. Of the three alternatives generated for each suburban county and the city of Chicago, the ones producing the highest and lowest population result were selected to represent the ranges presented in this document. The migration assumptions used to produce the high and low alternatives are further summarized in Diagram 4.

The household results were calculated through assumptions similar to those used for the region as a whole. Each county and the city of Chicago has a different household size due to the current differences in housing cost and density and differences in age and race distribution. All, however, show a similar expectation of declining household sizes. These assumptions are summarized in Table 4.

DIAGRAM 4

NET MIGRATION ALTERNATIVES

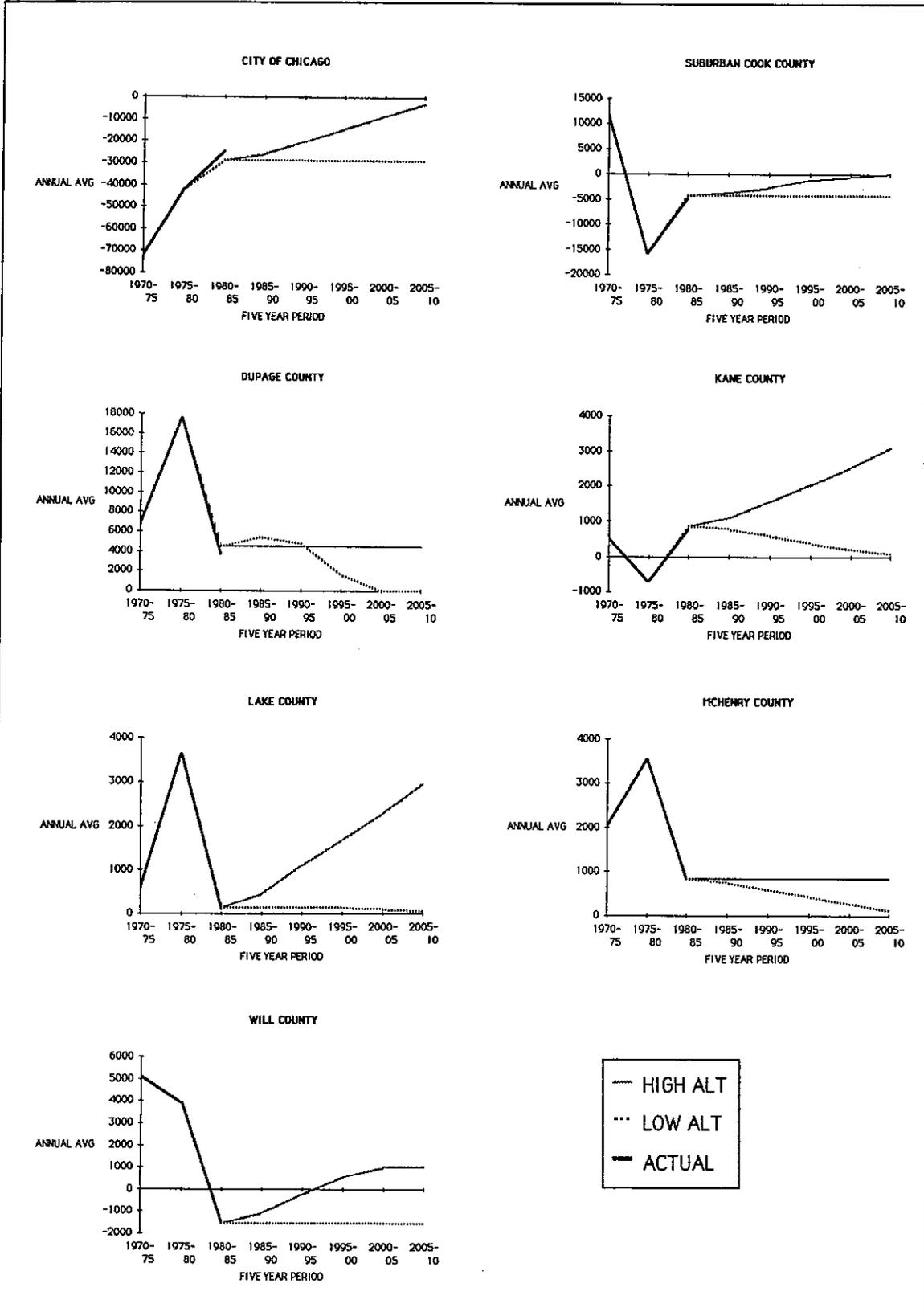


TABLE 4

HOUSEHOLD SIZE IN NORTHEASTERN ILLINOIS

	1950	1960	1970	1980	2005 AS ENDORSED JULY 1986	PRRLIM 2010
CHICAGO	3.18	3.01	2.91	2.71	2.49	2.45
SUBURBAN COOK	3.44	3.50	3.34	2.82	2.51	2.45
DUPAGE	3.49	3.66	3.56	2.92	2.71	2.67
KANE	3.24	3.34	3.26	2.92	2.58	2.51
LAKE	3.42	3.52	3.42	2.98	2.59	2.51
MCHENRY	3.37	3.45	3.35	2.99	2.67	2.61
WILL	3.42	3.44	3.43	3.07	2.74	2.67
N.E. ILLINOIS	3.25	3.20	3.14	2.80	2.55	2.50

During the years he was employed by the Chicago Area Transportation Study, Arnie Rosenbluh made important contributions to the NIPC forecast process through not only his constructive advice but also his unusual ability to help us maintain a proper perspective on what we were trying to do. The Research Services Department dedicates our efforts during this 1987 forecast cycle to his memory.

We will miss him.