HARVARD 2015
GROWTH PLAN

Draft submitted
by **Smith Engineering Consultants, Inc.,**
to the **City of Harvard**
on November 7, 1994

*-- **For Committee and Plan Commission Review only** --*

The City Council has not adopted this plan; nor has the Plan Commission or other appointed body recommended it for adoption.

Chapter.....I

Population & Growth

The projection of population growth for small cities is at best an educated guess. The effort is difficult even under steady circumstances, such as where a community is under continuing suburban growth pressures common to a region. The effort is especially difficult where the community is anticipating a new major industrial or commercial siting. The City of Harvard is in precisely this position following the announcement by Motorola of its intent to construct an industrial facility which will employ 4,000 to 8,000 people.

Importance of Projections

An accurate projection of population is necessary for the City to design infrastructure. The sizing of water, sewer and road facilities are all determined by reference to population. The long lead times required to bring the facilities on-line, typically five to eight years, mean that cities must anticipate demand and not wait until it has occurred. The process of making projections may also be useful in helping us verbalize the factors that shape growth locally, and in learning how we can manipulate those factors.

Methodology Used

The methodology for preparing projections consisted of two steps. First, we estimatedd the population arising both directly and indirectly from the location of the new major facility. Next, we estimated the population change without the major facility.

Major Facility Impact Models

In order to project the effect of a major facility siting, the Center for Governmental Studies at Northeastern Illinois University (NIU), under contract with the McHenry County Economic Development Commission, refined an input-output econometric model developed by the Regional

Science Research Corporation to project secondary employment that would be created in McHenry County as a result of the new plant construction. The Center for Urban Economic Development (CUED) with the University of Illinois at Chicago used that output, with its breakout by occupation, and an industry profile for Motorola, to project a distribution of both the Motorola employees and the induced employment. The distribution was based on the assumption that locational patterns would follow trip-to-work by occupation trends as reported in the 1990 census.

Projected Employment: Direct & Induced

Occupation	No.	%
Executive	130	13
Professional	140	14
Technical	70	7
Marketing & Sales	80	8
Administrative	160	16
Service	130	13
Precision	140	14
Operators	150	15

The NIU model projected the creation of 943 jobs in the County for each 1,000 jobs created at Motorola. *A breakout by two digit SIC occupational classification is shown at the right.* Thus, if Motorola were to employ 6,000 persons at the plant, the NIU model projects that 5,658 additional jobs would be created in McHenry County.

The CUED study assumes that past trends reflect patterns of locational preference or limits of acceptability which will reoccur in the future. Accordingly, CUED projects that approximately 36% of the Motorola employees and 11% of induced employment will seek to locate within a 10 minute drive of the plant. Another 15% of the Motorola employees and 13% of the induced employment will seek to live within a 15 minute drive of the plant. When the accepted travel time is extended to 20 minutes, 67% of all Motorola employees and 30% of all induced employment are accounted for. At the right is a table which shows the information as a percent of total employment.

Travel Time to Work	Direct	Induced
Within 5 minutes	19%	5%
Within 10 minutes	36%	11%
Within 15 minutes	51%	22%
Within 20 minutes	67%	40%

Applying the Models

The CUED information is based on existing travel time for the occupations studied. What the study does not show is how these same workers will respond to the lack of housing opportunities within 15 and 20 minutes of the plant.

Distribuition Matrix By Entity

	Travel Time to Work (minutes)			
Locality	<10	>10 <15	>15<20	>20
Harvard	60%	30%	5%	
Rural	20%	25%	25%	25%
Walworth	20%	45%	25%	
Marengo			20%	8%
Woodstock			25%	8%
Rockford				60%

Will the workers who have traditionally lived within 15 and 20 minutes of work seek to live closer or accept longer commutes? Case studies cited latter in this report suggest that at first longer commutes are accepted, but as workers have confidence in the permanence of the employment, they will move to an attractive location that is closer to work.

The towns closest to Harvard, as measured in travel time, are Walworth, Fontana, Sharon, Marengo and Woodstock. The Wisconsin towns are about 10 and 15 minutes drive respectfully. The nearest Illinois towns are 15 to 20 minutes away. McHenry, Crystal Lake, Rockford, Beloit, Janesville, Elkhorn and Lake Geneva are all beyond 30 minutes travel time.

Projected Population Increases from Motorola

Locality	Population
Harvard	6,215
Rural	7,636
Walworth	4,874
Marengo	2,196
Woodstock	2,473
Rockford	8,699

Applying the travel patterns predicted in the CUED study to the existing geography, we conclude that the preponderance of persons desirous of living within 10 minutes of where they work (25% of all new workers) will probably live in Harvard; that the preponderance of those who would live within 15 minutes will probably reside in Walworth, Fontana, Sharon and Harvard. Those who would live within 20 minutes would locate in Marengo, Woodstock, and Sharon. Persons who are willing to live over

Walworth includes Fontana and Sharon; Rockford includes McHenry, Crystal Lake, Beloit, Janesville, Elkhorn and Lake Geneva

30 minutes from work would reside in some of the following cities: Rockford, Beloit, Janesville, Elgin, Belvidere, DeKalb, McHenry and Crystal Lake.

The distribution model assumes that localities will accept their share of the population, that the market will respond to the demand, and the workers will find opportunities that they believe are attractive or acceptable. One large uncertainty is how the County will respond to market demands to create rural subdivisions in and around Harvard. If the conversion of agricultural land to residential subdivisions is strongly discouraged, consistent with the County's comprehensive plan, then the workers projected to live there will need to be redistributed. Similarly, many of the small communities in the impact area may lack infrastructure to accept growth or may want to otherwise discourage it. If so, their demand must also be redistributed.

Case Studies

As a check on the econometric model, Smith Engineering Consultants, Inc. identified and interviewed planning and administrative officials from several similarly situated communities in the United States. Among the municipalities interviewed, Marysville, Ohio and Smyrna, Tennessee stand out as being most similar to Harvard. Both communities were small towns beyond the limits of metropolitan growth. In both instances the major facility siting was an industrial plant.

Marysville. In Marysville, Honda built a small assembly plant for motorcycles in 1978. During the mid 1980's Honda added more lines, expanding gradually to their present employment of about 10,000 persons. During that period Marysville, which is located about 70 miles from Columbus, increased in size from 5,700 persons (7,700 before the 1980's expansion) to about 11,000 persons. Industrial spin-off lagged plant expansion by five years but now includes suppliers, transportation and warehouse facilities. Marysville has been an anomaly in the recession that gripped Ohio and most of the nation in the early 1990's, putting up 200 to 250 dwelling units per year.

Smyrna. A similar story is told at Smyrna, Tennessee. Nissan began planning for the plant in the late 1970's. In 1982, 2,000 persons were employed at the plant. The plant has been constantly expanding since that date, so that current employment stands at 6,000 persons. Smyrna has grown steadily from 9,000 persons in 1980 to 17,000 in 1994. Although Smyrna lies outside the edge of the metropolitan Nashville area, it is attracting suburban Nashville growth. Industrial spin-off was slow and

has affected surrounding towns more than Smyrna. Current spin-off includes warehousing and hauling.

The case studies suggest numbers that are fairly similar to the econometric model.

Natural Increase and Migration

The second step in projecting population is to determine the amount of natural increase (or decrease) and migration that is occurring without the major facility siting. Suburban development from the Chicago area strongly influences growth in the Crystal Lake and McHenry areas, accounting for an annual growth rate of 2.9% to 7.2% on the edge of that growth. That growth affects areas outside the suburbs accounting for a 2.1% annual growth in Woodstock. Growth out from Chicago appears to be following the transportation corridors. The effect of future suburban sprawl on Harvard during the planning period should be considerably greater than in the past, but not in excess of 2% per year during the planning period. Suburban sprawl could be greatly encouraged in Harvard by the expansion of mass transit services to the City.

Community	Annual Growth Rate
Algonquin	7.2%
Cary	4.2%
Crystal Lake	2.9%
McHenry	3.2%
Woodstock	2.1%

The City of Harvard maintained a fairly constant population from 1960 to 1980. Since 1980 the population has increased from 5,126 to 5,975 persons, about 1.6% growth per year. The age of the population, with less than 13% over 65 years of age and over 31% under 18 years of age, suggests a stronger than average natural increase during the next 20 years. The effect of natural increase and migration (mostly suburban sprawl) should cause a population increase of about 2% to 2.5% per year.

Combined Effect

The combined effect of natural increase, suburban growth and major facility siting should create a demand on the City of Harvard's population to expand somewhere in the range of 3.3% to 5.8% per year during the planning period. In terms of people, the City should expect enough demand to grow to about 10,000 people by 2005, and about 15,500 people by 2015. The City may select to pursue a growth rate that would result in a much smaller population. Selecting such a strategy requires a very careful analysis and understanding of where people might locate and the effect that pattern might have on the City.

Projected Population

Year	1995	2000	2005	2010	2015
Low	6,500	7,600	9,000	10,600	12,400
Moderate	6,500	8,100	10,100	12,600	15,600
High	6,500	8,600	11,500	15,100	20,100

Growth-- Good or Bad?

Harvard has had some experience with the problems of a zero or negative growth. Without development, buildings age without much improvement. New money is not infused into the community and new commercial opportunities are few. Regrettably infrastructure wears out and becomes obsolete or is unable to meet emerging federal and state requirements. Citizens demand new programs and improvements to existing ones. The costs of services outstrips the ability of the City to provide the services.

Growth provides an opportunity to pay for the services. Of course, if it's poorly handles, growth becomes its own curse. Too much growth can be unsettling to existing residents who are comfortable with their familiar surroundings, and with the predictability of travel times to work and shopping. It seems to be part of human nature to resist change.

While the lack of growth is generally viewed as a problem, growth, particularly the amount of growth, is by itself neither good or bad. It is an opportunity with some pluses and some minuses. Only if the rate of growth becomes so strong that government cannot reasonably respond to it, does it become a problem. You know you have reached that plateau when the city is planning a replacement or a major improvement to a water or sewer plant it has just brought on line.

Growth Strategy

Perhaps the greatest challenge for local government is to avoid having the problems of growth without the benefits. It is probably important to recognize the shape of the losers. One loser is where substantial development is occurring outside the city's planning jurisdiction but within a close enough distance to use the city's streets, have police protection and services while shopping and visiting institutions (schools, libraries, hospitals), and use the city's parks. Another loser is where an area in the planning jurisdiction which was planned for development with city water and sewer is developed without one or both services. The area then becomes a block to efficiently extending services necessary to growth. Other losers are more subtle. They include the location of residential subdivisions in areas planned for industrial use, in essence blocking the expansion of those uses and creating a fairly unattractive residential development. Others include the location of low intensity uses at intersections of arterials streets, and the location of large unsubdivided development in areas where the city has planned collector roads. Still another, but one which is more recognizable by the citizenry, is the location of an intense development (high density housing, retail or office uses, industry) in low intensity areas (low density residential).

Appendices

Population Model, Impact of Motorola, prepared by Jerry P. Davenport, Smith Engineering Consultants, Inc.

Commuter Residence Patterns for Motorola and Induced Employees in Harvard, Illinois, prepared by Joseph Persky, Center for Urban Economic Development, University of Illinois at Chicago

McHenry County/Motorola Project, Impact of Operations at Capacity prepared by John Lewis, Center for Governmental Studies, Northern Illinois University