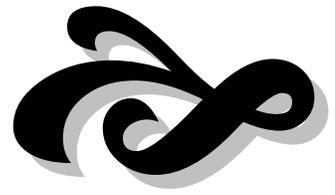


**VOLUME THREE
APPENDICES**

**Section A
Population Projection
Methodology**

APPENDIX A



POPULATION PROJECTION METHODOLOGY

1995

INTRODUCTION

In June 1992, the West Central Wisconsin Regional Planning Commission produced community level population projections for its seven counties based on the 1990 Census and previous Censuses and published them in *Population Projections for the West Central Wisconsin Region 1990-2020*. One year later the Wisconsin Department of Administration's (DOA) Demographic Services Center produced small area population projections, in accordance with State Statute 16.96, based on their 1992 population estimate and 1970 through 1990 Censuses. These projections were published in *Official Municipal Population Projections 1990-2015*.

There were differences in methodologies and assumptions between these two efforts that were reflected in the numbers attributed to the possible future population growth for the communities in St. Croix County. While the DOA numbers appeared to be conservative, the Regional Planning Commission numbers reflected their concern for the continued strong effect of the Minneapolis-St. Paul Metropolitan Area on St. Croix County population growth. Consequently, it was determined for this planning effort it was prudent to develop new population projections based upon more recent information about growth influences on the county and any resulting newly conceived assumptions.

LIMITATIONS OF POPULATION PROJECTIONS

Population projections are based on historical trends of population growth which are extended into the future. They are based on the assumption that those trends, and the factors behind them, will continue to some point in time. It is certain that not all of those factors will have the same influence on population change throughout the entire forecast period. It is also true that the closer the projection year is to the base year, the more likely the population for that projection will be close to the true population. Hence, the margin of error in population forecasts increases the farther out in time they are from the present.

These small area population projections also have limitations. Forecasts of large area populations are more reliable. For example, projections developed at the county level can be used to distribute the county population forecasts proportionally into the individual community projections. This "backing into" community projections from countywide forecasts is often done because the smaller the area for which a projection is produced, the greater the possibility for error.

Population projections are, at best, guides and must be used with consideration of their limitations. However, intimate knowledge of local conditions can help build the assumptions into population projections to make them more valid.

ASSUMPTIONS BEHIND POPULATION PROJECTIONS

Generally, population growth trends do not remain constant from decade to decade. The factors that influence population change are dynamic and are often subject to the effect of larger trends from outside an area's control. The forecasting of population change requires that certain assumptions be made regarding the conditions prevailing during the forecast period. Therefore, it is important to identify the assumptions inherent in the projection. The following factors and assumptions were incorporated into the population projections developed for the St. Croix County Development Management Plan.

In-migration will continue to be the driving impetus for population growth in St. Croix County. Many factors are involved in the personal and business decisions which result in migration into St. Croix County. The major factor of this migration is, of course, the proximity and easy access to the Minneapolis-St. Paul Metropolitan Area, with its employment opportunities and urban amenities. In St. Croix County there is the draw of the aesthetic appeal of the natural environment and pastoral countryside, and the small town or rural character of the communities. Indeed, the future rate of population increase will depend on the interrelated factors driving in-migration. These interrelated factors include the local, regional and national economy, people's perceptions and lifestyle preferences, the physical and cultural setting of the county, infrastructure improvements, regulation and taxation.

The economy has an important role in population growth of St. Croix County. The regional economy impacting St. Croix County is driven by the Twin Cities Metro area. In some areas of the county there is more than 70 percent of the working population commuting there for their employment opportunities. Locally, manufacturing employment has increased dramatically, and the growing population in the county has spurred more commercial services and retail trade employment. The creation and expansion of industrial development has continued into the 1990's, and commercial development continues to be generated, much of it probably from agglomeration effects. As a likely result of local and regional economic activity, construction employment increased by over 20 percent from 1990 to 1994. The availability of mortgage money, interest rates, and building costs are also economic factors that appear to remain favorable in St. Croix County.

The large increase in manufacturing employment in St. Croix County is contrary to national trends, where retail and service sector employment gains are outpacing virtual losses in manufacturing employment. In a local economy where one-fourth of the employment is in manufacturing, there could be concern about the effect a national recession could have. However, manufacturing employment gains were made in St. Croix County during two decades that saw major recessions decimate manufacturing employment elsewhere.

The lifestyle preferences of people and the perceptions of people and business contribute to decision-making which influences the movement of people and businesses. St. Croix County is on the metropolitan fringe with its low population density, low crime, rural residences and small communities, relative to the metropolitan core. In addition,

nearness to the metropolitan core gives St. Croix County residents access to its cultural, recreational and entertainment activities and events.

The physical setting of the county provides an aesthetic, natural beauty which most likely continues to attract people. The St. Croix, Willow, Kinnickinnic, Apple, Rush and Eau Galle Rivers with their valleys and associated natural features create the base for this aesthetic attraction. The natural environment combined with the cultural setting of the county's rural, small town and farm character leaves little question about the beauty of St. Croix County, and its continued appeal as a place to locate a home or business.

Infrastructure improvements in St. Croix County are likely to be a large influence on continued in-migration. Transportation improvements recently completed or to be completed in the near future include the Stillwater Bridge over the St. Croix River at Houlton, the I-94 Hudson Bridge upgrade to six lanes, improvements to Highway 35 from I-94 to River Falls, and an upgrade to four lanes of Highways 35 and 64 from Houlton almost all the way to New Richmond. In addition, there may be some impact on St. Croix County from improvements to the Prescott Bridge in Pierce County. The improvement of bridges and highways to meet demand will create more demand as development responds to the opportunities improved access provides. It is also likely that more eastern reaches of the I-94 corridor in St. Croix County will be an attraction for continued development.

The expansion of public utilities capacity can provide opportunities for continued residential, commercial and industrial development. For example, The City of Hudson is planning additional capacity for their wastewater treatment plant that will allow for and may attract development. As other communities in the county expand public facilities to meet anticipated demand, the capacity created can also attract development. Public utility expansion is probably ancillary to the other factors driving in-migration, and likely adds to the cumulative effect of all the factors in force.

Relative differences in taxation between the Twin Cities area and St. Croix County may also have a significant effect on in-migration. Although property taxes may be slightly higher in Wisconsin than in Minnesota, personal income taxes, sales taxes and taxes related to doing business (corporate income, commercial and manufacturing property and unemployment taxes, and worker's compensation insurance) are definitely lower in Wisconsin. These tax structures are not anticipated to change significantly during the forecast period.

Another factor which has and will influence St. Croix County growth and development is stricter development controls in Minnesota communities when compared to the development standards in the county. The growing and cumulative impacts of urban and suburban development have long been felt in the Minneapolis/St. Paul Metro area, resulting in a long tradition of land development regulations. These regulations, while addressing real impacts affecting communities, are often perceived as onerous and unnecessary and can influence location decisions.

Apparently the many positive influences on many individual, group or organizational decisions to migrate to St. Croix County overwhelm the perceived, potential or real

negative influences of high commuting, land, development and taxation costs. This is evidenced in the continued growth of St. Croix County since 1990, and is presumed here to be likely to continue into the forecast period of these population projections.

1995 POPULATION ESTIMATES

Developing 1995 population estimates for St. Croix County communities provided indices of population growth for the early 1990's that were then applied to producing updated population projections.

The 1995 population estimates were derived from a compilation of recorded building permits or residential sanitary permits (an indicator or precursor of population growth) from April 1990 through 1994, adjusted for demolitions and housing occupancy, and applied to a likely number of people per household.

Building Permits (Housing Units) - 1990 to 1994

Municipality	1990	1991	1992	1993	1994	1990-1994	Percent Occupancy	Adjusted Total
City of Hudson	24	110	90	61	114	399	95%	379
Town of Hudson	38	32	60	54	62	246	97%	238
Town of St. Joseph	24	29	28	28	32	141	91%	125
Town of Troy	15	16	30	33	36	130	93%	121
Village of North Hudson	20	16	28	31	22	117	96%	112

Source: U.S. Census Bureau, 1990-1995; * Beginning April 1990 (1990 Census was conducted in March)

Persons Per Household - 1990

Municipality	1990
City of Hudson	2.50
Town of Hudson	3.33
Town of St. Joseph	2.98
Town of Troy	2.97
Village of North Hudson	2.87

Source: U. S. Census Bureau, 1990

The above table presents the persons per household from the 1990 Census. Household size has been falling over the past two decades. However, it is not likely household size has changed much since 1990. Hence, the 1990 household size was used. The 1990-1994 adjusted building units multiplied by the 1990 persons per household information yielded an estimate of 1995 population. The process for producing the derived 1995 population estimates is shown below, and the results are compared to the Wisconsin Department of Administration 1995 population projection.

Population Estimates - 1995

<i>Municipality</i>	<i>1990-94 Added Housing Units A</i>	<i>1990 Persons Per Hshld B</i>	<i>1990-95 Pop Growth Estimate C</i>	<i>1990 Census Pop D</i>	<i>Derived 1995 Pop Estimate E</i>	<i>Wis. DOA 1995 Pop Proj.</i>
			(A x B)		(C + D)	
City of Hudson	379	2.50	948	6,378	7,326	7,052
Town of Hudson	238	3.33	795	3,692	4,487	4,323
Town of St. Joseph	125	2.98	374	2,657	3,031	2,919
Town of Troy	121	2.97	359	2,850	3,209	3,060
Village of North Hudson	112	2.87	322	3,101	3,423	3,375

Source: West Central Wisconsin Regional Planning Commission, 1995; Wis. DOA, 1993.

1990-2000 RATE OF POPULATION CHANGE

For comparison purposes to validate the need for locally produced population projections, the derived 1995 population estimate was used to extrapolate a 1990-2000 ten year growth rate. An example using the Hudson area is presented below, with the growth rates also demonstrated in the 1980 and 1990 decennial periods. It is clear that, into the 1990's, significant population growth is continuing. Indeed, the information provided by the derived 1995 estimates indicates that growth is occurring in St. Croix County at a faster rate than was predicted by the Wisconsin Department of Administration population projections. The county wide 1990-2000 rate of growth developed from the WCWRPC 1995 estimate is 22.8%, as opposed to the DOA projected growth rate of 13%. Therefore, it is deemed appropriate, based on more current local information, that population projections be developed on past Censuses and the WCWRPC 1995 estimates.

1990-1995 Rate of Growth Applied to 1990-2000

<i>Municipality</i>	<i>1990 Census Pop</i>	<i>Derived 1995 Pop Estimate</i>	<i>1990-95 Rate of Growth</i>	<i>Observed 1970-80 Ten Year Growth Rate</i>	<i>Observed 1980-90 Ten Year Growth Rate</i>	<i>Calculated 1990-2000 Ten Year Growth Rate</i>
City of Hudson	6,378	7,326	14.8%	7.6 %	17.4%	29.7%
Town of Hudson	3,692	4,487	21.5%	117.5%	83.5%	43.0%
Town of St. Joseph	2,657	3,031	14.1%	60.6%	21.9%	28.2%
Town of Troy	2,850	3,209	12.6%	53.3%	22.5%	25.2%
Village of North Hudson	3,101	3,423	10.4%	43.4%	39.8%	20.8%
St. Croix County	50,251	56,002	11.4%	25.9%	16.2%	22.8%

Source: West Central Wisconsin Regional Planning Commission, 1995

METHODOLOGY FOR THE 2000-2020 POPULATION PROJECTIONS

To arrive at the population projections for St. Croix County an average annual rate of population change was developed which was then applied to the five year out year time periods of concern. These preliminary projections were then modified (if necessary) to account for unusual rates of change. Hence, the population projections were developed in the following manner.

Average Change in the Population:

$$G = (((P95-P70)/25) + ((P95-P80)/15) + ((P95-P90)/5))/3$$

where: **P** is population; **G** is average annual numerical population change; and **70**, **80**, **90** (U.S. Census) and **95** (WCWRPC estimate) are the reference years of the population data.

Preliminary Population Projection:

$P_{2000} = P_{95} + 5G$; $P_{2005} = P_{95} + 10G$; $P_{2010} = P_{95} + 15G$, $P_{2015} = P_{95} + 20G$, and $P_{2020} = P_{95} + 25G$.

Modifications to Rates of Change:

An implied average annual rate of change at the time of forecast time origin (**P95**) was calculated for **G** for each community in the county. For each community the mean and standard deviation (S.D.) were determined for the rates of change for all adjacent communities. The average annual rate of change for each community in the county was then compared to the mean and standard deviation of all its adjacent communities.

Any community with a rate of change which fell beyond the range given by **mean \pm 1.5 (S.D.) of the bordering communities** was reset so as to equal **mean \pm 1.5 (S.D.) of the bordering communities**.

The purpose of this adjustment is to dampen high rates of change by taking into consideration for each community the rate of change in neighboring communities. The adjustment assumes that high rates of growth for any given community cannot continue for very long into the future and should therefore be dampened to reflect the changes of other nearby communities. After this adjustment the modified rates of change were converted into the annual numerical changes by applying the modified rate to the base year population (**P95**) of each community. This adjustment was only necessary for the Town of Hudson and the Village of Woodville.

No provisions were made to account for annexation influence upon population change. The population change experienced by two jurisdictions, one receiving annexed territory, and the other having territory annexed from it, reflect change which would incorporate

any annexation. In any event, annexation trends indicate there have been no unusually large annexations, and existing annexation patterns should continue into the future.

These local community population projections were not adjusted to an overall County projection. A countywide cohort-survival population projection was performed based upon the age-sex structure of the 1950 through 1990 population and historical birth, death and migration rates. This model resulted in countywide projections which exceeded the total of the local community population projections. The most dynamic aspect of the County's population change is occurring locally. A downward adjustment to any county-wide projection would have the effect of negating the assumptions that past growth factors are likely to continue to be important, and that new influences, such as transportation and development standards improvements, will significantly impact population growth. Hence, the local community population projections were deemed to be reasonable and are presented on the next page.

The St. Croix County Development Management Plan planning horizon is twenty years. These projections recognize the potential for St. Croix County to grow by 19,020 people in the twenty years between 1995 and 2015, a 34 percent increase. St. Croix County's population grew by 46.3% between 1970 and 1990. These projections are based upon the assumption that the same dynamics which drove past population increases in St. Croix County still exist, and that some of these factors may even be stronger well into the twentieth century.

Development Management Plan Population Projections - 1990 to 2020
St. Croix County

Municipality	1990 Census	1995 Est.	2000 Proj.	2005 Proj.	2010 Proj.	2015 Proj.	2020 Proj.
Baldwin Town	911	943	957	971	986	1,000	1,014
Cady Town	643	670	673	676	679	682	685
Cylon Town	639	662	666	671	675	679	684
Eau Galle Town	756	840	870	899	929	959	988
Emerald Town	630	670	692	715	737	759	782
Erin Prairie Town	647	697	730	762	795	828	861
Forest Town	614	623	623	624	624	625	625
Glenwood Town	700	738	751	765	778	792	805
Hammond Town	819	922	978	1,034	1,090	1,146	1,202
Hudson Town	3,692	4,487	5,157	5,945	6,731	7,516	8,299
Kinnickinnic Town	1,139	1,343	1,483	1,622	1,762	1,902	2,041
Pleasant Valley Town	384	408	427	445	464	482	501
Richmond Town	1,400	1,546	1,648	1,750	1,852	1,954	2,057
Rush River Town	419	452	461	470	480	489	498
St. Joseph Town	2,657	3,031	3,362	3,693	4,023	4,354	4,685
Somerset Town	1,968	2,275	2,497	2,719	2,940	3,162	3,384
Springfield Town	772	804	813	822	831	839	848
Stanton Town	1,042	1,090	1,114	1,139	1,163	1,188	1,212
Star Prairie Town	2,098	2,374	2,584	2,795	3,005	3,215	3,425
Troy Town	2,850	3,209	3,540	3,870	4,201	4,531	4,862
Warren Town	1,008	1,146	1,255	1,363	1,472	1,580	1,689
Baldwin Village	2,022	2,165	2,324	2,484	2,643	2,802	2,961
Deer Park Village	237	271	290	310	329	348	367
Hammond Village	1,037	1,189	1,270	1,350	1,431	1,512	1,593
North Hudson Village	3,101	3,423	3,789	4,156	4,522	4,888	5,254
Roberts Village	1,043	1,062	1,132	1,203	1,273	1,343	1,414
Somerset Village	1,072	1,360	1,553	1,745	1,938	2,131	2,323
Star Prairie Village	507	560	606	653	699	746	792
Wilson Village	163	169	175	181	187	194	200
Woodville Village	942	1,109	1,231	1,373	1,514	1,656	1,794
City of Glenwood City	1,026	1,071	1,116	1,161	1,206	1,251	1,296
City of Hudson	6,378	7,326	8,004	8,682	9,360	10,038	10,716
City of New Richmond	5,106	5,549	5,958	6,367	6,776	7,185	7,594
City of River Falls*	1,498	1,818	1,925	2,032	2,139	2,246	2,353
*Portion in St. Croix County							
ST. CROIX COUNTY	50,251	56,002	60,655	65,446	70,235	75,022	79,805

Source: West Central Wisconsin Regional Planning Commission, 1995

COMPARISONS TO DOA PROJECTIONS

The population projections prepared for this plan differ significantly from the Department of Administration's 1993 projections. The reason for this difference is the result of the locally conceived assumptions about the future influential factors impacting population change in St. Croix County. This information was not available to DOA when they produced their projections. The DOA projections are presented below.

**Department of Administration Population Projections - 1990 to 2015
St. Croix County**

1990 Census	1995	2000	2005	2010	2015
50,251	54,282	56,751	58,384	59,689	60,756

Source: Department of Administration, Demographic Services, 1993

DOA projected a 1990-2000 growth rate for St. Croix County of 13%. As is demonstrated above, the likely growth rate for 1990-2000, based on the 1995 estimate, is over twenty percent. The plan establishes the projected 1990-2000 rate of population change for St. Croix County at 20.7%.

The DOA projections further diminish the potential for continued significant population growth in periods beyond the year 2000. The DOA projected growth rate for 2000-2010 is 5.2%. The county has not experienced a decennial rate of growth this low since the 1940's (4.3%). From 2005 to 2015, DOA expects the county to only grow by about 4 percent, while this plan anticipates a 14.6% population growth for the same period. For the 1995-2015 planning horizon of this plan the DOA projected growth rate is 11.9%, as opposed to the plan projected 1995-2015 population growth rate of about 34 percent.

The population projections produced for the plan are considered more realistic than the DOA projections only because of they employed improved assumptions generated by local knowledge of local conditions, the recent past, and plans for the future.

