“Determinants of Health” is the term used for those factors that have a positive or negative influence on health at the individual or population level. Determinants help explain and predict trends and explain why some groups have better or worse health than others. They are key to prevention of disease, illness or injury.

5.1 Income

It is widely believed that there is a close association between poverty, low income and poor health outcomes, even in the developed countries. Poverty reduces the ability to exercise choice over where people live, where their children go to school, and children’s diet. Poverty also reinforces health-damaging behaviors.

5.1.1 Income Categories

5.1.1.1 Total Family Income

Family income\(^1\) is the combined income of all family members from all sources of income before income taxes are deducted.

Although not directly comparable, the proportion of families in the Regina Qu’Appelle Health Region in 2001 with total incomes greater than $70,000 was 7.6% greater than what it was for Regina Health District families in 1996. There is little change in the levels across all the mid-range income categories, and no change in the under $10,000 category. This suggests that gains have been made for high-income families, while incomes have remained stable for the rest (Figure 5-1).

With the exception of those at the lowest level, family incomes are higher in the Regina Qu'Appelle Health Region than in the rest of the province. While the Region has a similar number of families in the under $10,000 income category, it has fewer families in all of the mid-range categories, and considerably more families in the highest income range.

---

\(^1\) A family refers to a married couple or a couple living common-law, with or without children of their own; or a lone parent of any marital status, with at least one child living in the same dwelling.
There is strong evidence that the health of a given population depends on the equality of income distribution. The greater the disparity between the rich and the poor, the greater are the health consequences. Examining the distribution of household income in the Regina Qu'Appelle Health Region is one way to assess whether this disparity has increased or decreased over the time period 1996-2001.

Household income follows the same pattern as that of family income. Growth has occurred in the proportion of households at the highest income level over the time period 1996 to 2001 while the percentage of households in the other income levels remained stable (Figure 5-2). This is consistent with national trends, which show substantial gains in the number of people who earned $100,000 or more, while the number of Canadians that were making $20,000 or less changed very little during the decade of the 1990’s.

Compared with the rest of the province, the Regina Qu'Appelle Health Region has slightly fewer households at the mid-income but 6% more families at the highest income level. The number of households at the lowest income level is similar for both.

---


3 [http://www12.statcan.ca/english/census01/Products/Analytic/companion/inc/contents.cfm](http://www12.statcan.ca/english/census01/Products/Analytic/companion/inc/contents.cfm)
5.1.1.3 Median Family Income and Income Distribution

The median family income is the point where exactly one half of incomes are higher and one half are lower. In 2001, the median family income for couple families in the Regina Qu'Appelle Health Region was higher than lone parent families (Figure 5-3).

Married couples have higher family incomes than common-law couples, and both of these have higher incomes than families headed by a single parent. Male lone parent families have higher incomes than lone parent families headed by a female.

The income levels in the Regina Qu'Appelle Health Region for each category of family structure are higher than those for the rest of the province. The income distribution for the categories in the rest of Saskatchewan mirrors that of the Region.
Figure 5-3 Median Family Income
Source: Statistics Canada Census 2001

**5.1.1.4 Income Comparisons by Gender**

Gender differences between males and females in the Regina Qu'Appelle Health Region are most prominent at the upper and lower income levels. In 2001, 37.8% of males earned an annual income of less than $19,999 as compared to 52.9% of females, while more than twice as many males as females earned $50,000 and over (22% and 8.9% respectively).

This pattern is similar for the rest of Saskatchewan; however, the rest of the province has a higher percentage of both men and women in the under $19,999 and a lower percentage of both genders in the $50,000 and over income bracket.

The income profile for women in 2001 is better than it was in 1996, with less women earning under $20,000 (52.9% vs. 57.8% in 1996). The percentage of women earning $50,000 and over has more than doubled from 4.4% in 1996 to 8.9% in 2001.

The income profile for men has changed little except for an increase in the percentage of those earning annual incomes of $50,000 and over (18.3% in 1996 vs. 22% in 2001).
Figure 5-4 Income range, Males
Source: Statistics Canada Census, 1996 and 2001

Figure 5-5 Income Range, Females
Source: Statistics Canada Census, 1996 and 2001
5.1.1.5 Farm Income in the Regina Qu’Appelle Health Region

Farm income is a useful indicator of the well being of farm families living in the Regina Qu'Appelle Health Region. Statistics Canada estimates Saskatchewan farm family average income for 2002 at $72,296, up 1.4% from $71,286 in 2001. In the 2001 Census of Agriculture, Statistics Canada found 5,070 farms in the Region, which is about 10% of the 49,000 farms in the province. As in other parts of the province, the number of farms is declining although it is doing so more quickly. From 1991 to 2001, the number of farms in the Regina Qu'Appelle Health Region dropped by 23%. This compares with a drop of 13% provincially.

Farms in the Regina Qu'Appelle Health Region differ from other Saskatchewan farms in a number of ways; in other ways they are the same.

- Classified according to their main source of revenue, 21% are cattle farms and 53% typically grow something other than wheat. This compares with 25% and 49% respectively for all farms in Saskatchewan. Hog farms are much less common than in other parts of the province.
- The average farm size is 1,120 acres compared with 1,320 provincially so farms are, on average, smaller. This is partly because there are nearly 1,000 market gardens and “hobby” farms with less than 180 acres. At the other end of the scale, there are over a thousand farms with 1,600 or more acres (Figure 5-6).
- Two thirds of the land is owned; one third is rented or leased.
- The market value of the average farm was $632,000 compared with $683,000 provincially.
- The smaller size generally translates into lower revenues. In 2000, the average Regina Qu'Appelle Health Region farm had gross receipts of $111,000 compared with $120,000 provincially. Expenditures were almost as high as in other parts of the province so net cash income was also lower - $12,600 compared with $17,800.

After two relatively good years, farm incomes in Saskatchewan fell dramatically in 2003. Net cash income was the lowest in at least thirty years as the combined effects of drought-reduced yields and lower cattle prices reduced receipts. Net income increased slightly in 2004 and the outlook for 2005 is better. Both cattle and grain prices are increasing from their previous lows. An increase in farm debt over the past few years makes Saskatchewan farmers vulnerable to any increase in interest rates.

---

4 Doug Elliot, Editor, Sask Trends Monitor, Saskatchewan
5 Statistics Canada defines a farm on the basis of sales of agricultural products. Only farms with $2,500 or more in gross revenues are counted.
5.2 Poverty

The most commonly used measure of poverty is the low income cut-offs (LICOs) developed by Statistics Canada\textsuperscript{6}. The LICO calculation takes into account family size, urbanization and percent of gross income spent on necessities (food, clothing and shelter). Statistics Canada frequently updates its LICOs based on changes in the proportion of average income devoted to essentials.

Statistics Canada publishes the low-income cut-offs. Persons and families living below these levels are considered to be living below the poverty line. A family of four living in the City of Regina with an income of less than $31,090 in 2002 would have been living below the poverty line. A similar family in a rural setting would not have been below poverty line unless their income was less than $25,050.

The definition of family used by Statistics Canada in determining low income is the economic family. It includes all occupants of a dwelling unit who are related by blood, marriage or adoption. It also includes couples living together in common-law relationships. An unattached individual is a person who either lives alone or shares a dwelling unit, but is unrelated to the other occupants by blood, marriage, adoption or common-law relationship.

As can be seen from Figure 5-7, unattached individuals experience a poverty rate more than three times that of economic families. In 2001, 35% of unattached individuals lived below the LICO. This is down from 37% in 1996, and lower than the rate of 36% for the rest of Saskatchewan.

Fifteen percent of the total Regina Qu'Appelle Health Region population living in all private households has an annual income below the low-income cut-off. This is 2% less than the 1996 rate and 1% less than the rate for the rest of Saskatchewan.

\textsuperscript{6} Statistics Canada rejects the LICOs as a poverty line, referring to it only as a measure of income inequality.
Statistics Canada findings in Census Metropolitan Areas (CMA) across Canada demonstrate that particular groups are at higher risk of living in low income. These groups include Aboriginal people, lone parent families, seniors, and children.

From 1990 to 2000 in the Regina CMA, low income rates for children in low income families have increased from 15 to 19.2. Rates for lone parents and seniors have gone down during this time period. The lone parent rates dropped from 47.9 to 46 and the rates for seniors from 29.3 to 14.

Low income rates among aboriginal people dropped from 62.6 in 1995 to 53.2 in 2000\(^7\).

5.2.1 Social Assistance

Social assistance provides employment and financial assistance to people who are in temporary financial need.

5.2.1.1 Cases and Beneficiaries on Social Assistance

Social assistant caseloads and the number of social assistance beneficiaries\(^8\) in the Regina Qu’Appelle Health Region have decreased dramatically since 1996 (Figure 5-8 and Figure 5-9). A similar drop has occurred for the rest of Saskatchewan.

The Department of Community Resources and Employment attributes this drop to changes that have been made to the province’s income security system. The reforms target specific supports to

---

\(^7\) Statistics Canada, Catalogue No. 89-613-MIE-No.001

\(^8\) A case refers to a single individual or a family unit on social assistance. The number of beneficiaries refers to total number of single individuals and head of family unit on social assistance plus all their dependents.
a greater number of individuals living on low income and seek to reduce the need for low-income people to rely on social assistance while working towards greater economic stability.\footnote{Department of Community Resources and Employment, Saskatchewan, 2003}
5.2.1.2 Families with Children under Age 6 on Social Assistance

Regina Qu'Appelle Health Region social assistance beneficiaries under the age of 6 have dropped from a high of 4005 in 1996 to 2320 in 2003, a decline of 42% in the number of beneficiaries.

This reduction can, in part be attributed to income redistribution policies and programs that have been implemented provincially and federally to ensure that families have adequate income to “address the potential effects of income and income inequality on child development”.

The Saskatchewan Child Benefit Program and the Canada Child Tax Benefit Program have resulted in more money being targeted directly to low income families who would traditionally have received money through the provincial social assistance program. In Saskatchewan, these programs are delivered as an integrated monthly payment to eligible families on behalf of each child less than 18 years of age. The payment is intended to help lower income working families remain in the workforce and reduce financial barriers for those who want to work.¹⁰

¹⁰ www.dcre.gov.sk.ca/publications/annualreports
Figure 5-10 Social Assistance Beneficiaries under Age 6
Source: Department of Community Resources and Employment, 2003
5.2.1.3 Lone Parent and Two-Parent Families on Social Assistance

Two parent families had consistently lower rates of social assistance than lone parent families in both Regina Qu’Appelle Health Region and Saskatchewan from 1989-2003. Compared to families with two parents, those headed by a lone parent are many more times likely to experience financial hardship. For example, in 2003, 196 out of every 1000 single parent families compared to only 8 out of every 1000 two-parent families were receiving social assistance (Figure 5-11).

![Social Assistance Rate Lone Parent and 2 Parents Families](image)

Figure 5-11 Social Assistance Rates
Source: Department of Community Resources and Employment)
Saskatchewan = rest of Saskatchewan

5.3 Housing Affordability

Housing cost is another indicator of poverty. Households spending 30% or more of total household income on shelter expenses are considered to have affordability problems. Those who pay more than 30% of their gross income on shelter costs (rent, mortgage and utilities) are often considered to be living in poverty.

---

11 Statistics Canada
While figures are not available at a regional level, the percentage of households in the City of Regina spending greater than 30% of their income on shelter costs is unchanged from 1996, at a rate of 39% of renters and 8% of homeowners. These proportions are consistent with the rest of Saskatchewan.

As can be seen from Figure 5-12, renters are much more likely than homeowners to spend more than 30% of their income on shelter.

![Proportion With Shelter Costs Greater Than 30% of Household Income](image)

<table>
<thead>
<tr>
<th></th>
<th>City of Regina - 1996</th>
<th>City of Regina - 2001</th>
<th>Saskatchewan - 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners</td>
<td>8.0</td>
<td>8.1</td>
<td>8.7</td>
</tr>
<tr>
<td>Renters</td>
<td>39.0</td>
<td>38.7</td>
<td>31.7</td>
</tr>
</tbody>
</table>

Figure 5-12 Housing Affordability  
Source: Statistics Canada 1996 and 2001  
Saskatchewan = rest of Saskatchewan

5.4 Physical Environment - Housing Characteristics

5.4.1 Rent or Own Home

The census defines a private dwelling as one in which a person or group of persons are permanently residing. The Regina Qu'Appelle Health Region has a total of 93,360 housing units as reported by 2001 Statistics Canada Census. In 2001, 29% of private dwellings in the Health Region were renter-occupied compared to 26.8% for the rest of Saskatchewan (Figure 5-13).
5.4.2 Age of Housing Stock

The housing stock in the Regina Qu'Appelle Health Region is generally older. Almost 50% of all housing stock in the Region was built prior to 1970 (Figure 5-14). Close to 27% was built in the time period 1971 to 1980 and 23.6% from 1981 to 2001. Seven percent of all housing was built from 1991 to 2001. The percentages for the rest of Saskatchewan are lower for the time periods 1946 to 1980, and somewhat higher before 1946 and from 1981 to 2001.
Figure 5-14 Age of Housing Stock
Source: Statistics Canada Census, 2001
Saskatchewan = rest of Saskatchewan

5.4.3 Housing Repair Needs

Respondents to the 2001 census were asked to indicate the repair needs of their own or rented dwellings. The repair needs fell into three categories: only regular maintenance is needed (such as painting), minor repairs are needed (such as missing or loose floor tiles or siding) or major repairs are needed (such as defective plumbing, structural repairs to walls, floors or ceilings).

In 2001, 9.3% of Regina Qu'Appelle Health Region respondents said that their houses were in need of major repair, and 29.1% said that their house was in need of minor repair. These figures are slightly higher than those for the Regina Health District in 1996 (7.6% for major repairs, and 29.1% for minor repairs).

In 2001, there were fewer homes in the Regina Qu'Appelle Health Region that were in need of repairs as compared to rest of the province, where 10.7% indicated the need for major repairs and 32.2% for minor repairs (Figure 5-15).
5.5 Social Support Networks

A high level of social support is an important coping mechanism for individuals when problems arise. High levels of social support can contribute to personal well being and overall good health.

To collect information on informal social contacts and support the Canadian Community Health Survey asked respondents how often is the following kind of support available to you if you need it? (None of the time, a little of the time, some of the time, most of the time, all of the time)

- Someone to confide in or talk to about your self or your problems
- Someone to count on in a crises situation
- Someone to make you feel loved and cared for

Figure 5-16 shows the percentage of people in the Regina Qu'Appelle Health Region who have someone to confide in, all or most of the time by age group. Most people felt that they could confide in someone when needed. The percentage is highest for those aged 12 to 19 (94.7%). It diminishes with each successive age group to a low of 78.1% for those 65 and over. The percentages of those who have someone to count on in a crisis situation all or most of the time (Figure 5-17) are somewhat lower for the 12 to 19 and the 20 to 34 year age groups, but similar for the other age groups.
It is interesting to note that percentages for those who have someone to make them feel loved and cared for all or most of the time are higher than for the other two questions for each of the age groups.
5.5.1 Employment Indicators

The labour force participation rate is defined as the percentage of the population 15 years and over in the labour force. It shows the percentage of the population who are participating in the labour force, whether they are working, or looking for work. The unemployment rate is a measure of all persons who are part of the labour force and who are not working, expressed as a percentage of the total labour force. Persons are considered part of the labour force if they are employed or self-employed, are on temporary lay off, are about to start a new job, or are actively looking for work.

In 2001, 69% of the population aged 15 and over in the Regina Qu'Appelle Health Region were labour force participants according to the above definition, with men having a higher rate than women (74% vs. 65%). As can be seen from Table 5-3, there were more women in the Regina Qu'Appelle Health Region in the labour force than for the rest of the province (65% vs. 61%).

Male participation rates in the 15 to 24 age group are also higher than those of their female counterparts, but by a much narrower margin (70% vs. 68%). Compared to the province, the Regina Qu'Appelle Health Region has a higher percentage of both males and females in this age group participating in the labour force (Table 5-4).

The employment rate, or the employment to population ratio, is the proportion of an economy’s working-age population (taken as 15 years and older) that are employed either on a full-time or part-time basis. Both the self-employed and paid workers are included. As an indicator, the employment-to-population ratio provides information on the ability of the economy to create jobs.
The employment rate is the best indicator of the availability of jobs. The unemployment rate is not appropriate for small labour markets such as exist within the Regina Qu'Appelle Health Region, because unemployed persons often leave if jobs are not available\textsuperscript{12}.

In June of 2001, the overall employment rate for the Regina Qu'Appelle Health Region was 65% (Table 5-1). The rate for men was 7% higher than that for women. The rates for females in the Regina Qu'Appelle Health Region were 5% higher than their counterparts in the rest of Saskatchewan (62% vs. 57%).

Looking back to 1996, the overall employment rate for women has gone up by 2% (from 60% to 62%) and has slipped down from 70% to 69% for males over the 5 year time period (Table 5-2 and Table 5-3).

In 2001, the unemployment rate for the population ages 15 and over for both the Regina Qu'Appelle Health Region and Saskatchewan was 6%. This was down slightly from a rate of 7% in 1996 (Table 5-1). The unemployment rate for males fell from 8% to 7% and the rate for females fell from 7% to 5% (Table 5-2 and Table 5-3).

Table 5-4 shows that the unemployment rate for both males and females aged 15 to 24 years has also dropped as compared to the 1996 rate. The rate for females fell from 14% to 10% and for males from 15% to 14%. The unemployment rate for males in the Regina Qu'Appelle Health Region was higher than the rate for the rest of Saskatchewan (14 vs. 13%). The rate for females was two points lower than the rate for the rest of Saskatchewan (12% vs. 10%).

<table>
<thead>
<tr>
<th>Employment Indicators</th>
<th>Regina Health District, 1996</th>
<th>Regina Qu'Appelle Health Region and Saskatchewan, 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 15 and older</td>
<td>184,460</td>
<td>571,060</td>
</tr>
<tr>
<td>Total Labour Force</td>
<td>127,905</td>
<td>384,335</td>
</tr>
<tr>
<td>Employed</td>
<td>120,100</td>
<td>359,635</td>
</tr>
<tr>
<td>Unemployed</td>
<td>7,805</td>
<td>24,695</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Participation rate</td>
<td>69%</td>
<td>67%</td>
</tr>
<tr>
<td>Employment rate</td>
<td>65%</td>
<td>63%</td>
</tr>
</tbody>
</table>

Table 5-1 Employment Indicators, Both Sexes
Source: Statistics Canada Census, 1996 and 2001
Saskatchewan = rest of Saskatchewan

\textsuperscript{12} Doug Elliot (August 2004). \textit{Focusing on People}. Sasktrends Monitor (www.sasktrends.ca)
### Employment Indicators, Male
**Regina Health District, 1996**
**Regina Qu'Appelle Health Region and Saskatchewan, 2001**

<table>
<thead>
<tr>
<th></th>
<th>Regina Qu'Appelle Health Region</th>
<th>Saskatchewan</th>
<th>Regina Health District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 15 and older</td>
<td>88,940</td>
<td>279,850</td>
<td>75,585</td>
</tr>
<tr>
<td>Total Labour Force</td>
<td>65,965</td>
<td>207,940</td>
<td>57,157</td>
</tr>
<tr>
<td>Employed</td>
<td>61,240</td>
<td>193,675</td>
<td>52,787</td>
</tr>
<tr>
<td>Unemployed</td>
<td>4,725</td>
<td>14,265</td>
<td>4,355</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>7%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Participation rate</td>
<td>74%</td>
<td>74%</td>
<td>76%</td>
</tr>
<tr>
<td>Employment rate</td>
<td>69%</td>
<td>69%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Table 5-2 Employment Indicators, Male
Source: Statistics Canada Census, 1996 and 2001
Saskatchewan = rest of Saskatchewan

### Employment Indicators, Female
**Regina Health District, 1996**
**Regina Qu'Appelle Health Region and Saskatchewan, 2001**

<table>
<thead>
<tr>
<th></th>
<th>Regina Qu'Appelle Health Region</th>
<th>Saskatchewan</th>
<th>Regina Health District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 15 and older</td>
<td>95,520</td>
<td>291,215</td>
<td>81,410</td>
</tr>
<tr>
<td>Total Labour Force</td>
<td>61,935</td>
<td>176,405</td>
<td>52,568</td>
</tr>
<tr>
<td>Employed</td>
<td>58,860</td>
<td>165,965</td>
<td>49,103</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3,080</td>
<td>10,430</td>
<td>3,430</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>Participation rate</td>
<td>65%</td>
<td>61%</td>
<td>65%</td>
</tr>
<tr>
<td>Employment rate</td>
<td>62%</td>
<td>57%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Table 5-3 Employment Indicators, Female
Source: Statistics Canada Census, 1996 and 2001
Saskatchewan = rest of Saskatchewan
### Employment Indicators, 15-24 Years Old
**Regina Health District, 1996**
**Regina Qu'Appelle Health Region and Saskatchewan, 2001**

<table>
<thead>
<tr>
<th></th>
<th>2001 Regina Qu'Appelle Health Region</th>
<th>1996 Saskatchewan</th>
<th>Regina Health District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 15-24 years, Both sexes</td>
<td>35,340</td>
<td>107,510</td>
<td>300,75</td>
</tr>
<tr>
<td>Total Labour Force</td>
<td>24,400</td>
<td>69,365</td>
<td>20,270</td>
</tr>
<tr>
<td>Employed</td>
<td>21,435</td>
<td>60,475</td>
<td>17,225</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2,965</td>
<td>8,890</td>
<td>2,985</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>12%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Participation rate</td>
<td>69%</td>
<td>65%</td>
<td>67%</td>
</tr>
<tr>
<td>Employment rate</td>
<td>61%</td>
<td>56%</td>
<td>57%</td>
</tr>
<tr>
<td>Population 15-24 years, Males</td>
<td>17,925</td>
<td>54,965</td>
<td>14,910</td>
</tr>
<tr>
<td>Total Labour Force</td>
<td>12,575</td>
<td>36,795</td>
<td>10,418</td>
</tr>
<tr>
<td>Employed</td>
<td>10,790</td>
<td>31,920</td>
<td>8,853</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1,775</td>
<td>4,885</td>
<td>1,590</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>14%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Participation rate</td>
<td>70%</td>
<td>67%</td>
<td>70%</td>
</tr>
<tr>
<td>Employment rate</td>
<td>60%</td>
<td>58%</td>
<td>59%</td>
</tr>
<tr>
<td>Population 15-24 years, Females</td>
<td>17,415</td>
<td>52,545</td>
<td>15,115</td>
</tr>
<tr>
<td>Total Labour Force</td>
<td>11,825</td>
<td>32,570</td>
<td>9,830</td>
</tr>
<tr>
<td>Employed</td>
<td>10,645</td>
<td>28,560</td>
<td>8,403</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1,185</td>
<td>4,010</td>
<td>1,385</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>10%</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>Participation rate</td>
<td>68%</td>
<td>62%</td>
<td>65%</td>
</tr>
<tr>
<td>Employment rate</td>
<td>61%</td>
<td>54%</td>
<td>56%</td>
</tr>
</tbody>
</table>

Table 5-4 Employment Indicators, 15-24 Years Old
Source: Statistics Canada Census, 1996 and 2001
Saskatchewan = rest of Saskatchewan

#### 5.5.2 Labour Force Activity, Females

In 2001, 5% more women in the Regina Qu'Appelle Health Region with children under 6 years of age participated in the labour force (72.2% vs. 67.2%) than in Saskatchewan. A similar difference was also observed for participation rates of all women with children in the Regina Qu'Appelle Health Region and Saskatchewan (71.6% vs. 67.6%). In 2001, the participation rate for women with children age 6 and over was 80.4% (Table 5-5 and Figure 5-19).
## Labour Force Activity, Females 15 Year and Over

Regina Qu'Appelle Health Region and Saskatchewan, 2001

<table>
<thead>
<tr>
<th></th>
<th>Children under 6</th>
<th>Children 6 year and over</th>
<th>Children under 6 and over 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQHR</td>
<td>72.2%</td>
<td>80.4%</td>
<td>71.6%</td>
</tr>
<tr>
<td>SK</td>
<td>67.2%</td>
<td>78.9%</td>
<td>67.6%</td>
</tr>
</tbody>
</table>

**Source:** Statistics Canada Census, 2001

Saskatchewan = rest of Saskatchewan
### Labour Force Activity, Females 15 Years and Over Living in Private Households

*Regina Qu'Appelle Health Region and Saskatchewan, 2001*

<table>
<thead>
<tr>
<th></th>
<th>Regina Qu'Appelle Health Region</th>
<th>Saskatchewan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Females 15 years and over in private households with children under 6 years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the labour force</td>
<td>6855</td>
<td>20615</td>
</tr>
<tr>
<td>Participation rate (%)</td>
<td>72.2</td>
<td>67.2</td>
</tr>
<tr>
<td></td>
<td><strong>Females 15 years and over in private households with children 6 years and over</strong></td>
<td></td>
</tr>
<tr>
<td>In the labour force</td>
<td>26535</td>
<td>77295</td>
</tr>
<tr>
<td>Participation rate (%)</td>
<td>80.4</td>
<td>78.9</td>
</tr>
<tr>
<td><strong>Females 15 years and over in private households with children under 6 years and children 6 years as well as children 6 years and over</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the labour force</td>
<td>5130</td>
<td>18075</td>
</tr>
<tr>
<td>Participation rate (%)</td>
<td>71.6</td>
<td>67.6</td>
</tr>
</tbody>
</table>

Table 5-5 Labour Force Activity, Females 15 years and over in private households with children under 6 years

Source: Statistics Canada Census, 2001

Saskatchewan = rest of Saskatchewan

### 5.5.3 Hours Spent Looking After Children Without Pay

The census collects information about the number of hours that respondents spent looking after children without getting paid for doing so. This includes time spent taking care of one’s own children or looking after the children of relatives, friends or neighbours. Only hours spent on the activity the week before census day are counted.\(^{13}\)

For the Regina Qu'Appelle Health Region population 15 years and over, females spent more unpaid hours caring for children than males. Figure 5-20 shows that females are dominant in the categories with higher hours of child-care. The most striking difference is in the category 60 or more. Twelve percent of females compared with 4% of males fall within this category. Males (64%) are more likely not to provide unpaid childcare than females (57%). These proportions are consistent with 1996 census comparisons. Trends are very similar for the rest of Saskatchewan.

---

\(^{13}\) Statistics Canada
5.5.4 Hours Spent Doing Unpaid Housework

Census respondents were asked to report the number of hours spent doing housework, maintaining the house or doing yard work without getting paid for it during the week before Census Day (May 15, 2001). This includes time spent preparing meals, mowing the lawn, or cleaning the house, for oneself, or for relatives, friends or neighbours\(^\text{14}\).

Males in the Regina Qu'Appelle Health Region were more likely to report doing less than 5 hours of housework, while 54% of females reported doing between 5 and 29 hours per week of housework. A much smaller percentage of either gender reported doing 30 to 59 or 60 hours or more of housework in a one week period. This pattern is consistent with the rest of Saskatchewan (Figure 5-21).

---

\(^{14}\) [http://www12.statcan.ca/english/census01/Products/References/dict/appendices](http://www12.statcan.ca/english/census01/Products/References/dict/appendices) 92-378-XIE02002
5.5.5 Employment by Industry Type

Industry type refers to the general nature of the business carried out in the establishment where the census respondent worked. If the person did not have a job during the week (Sunday to Saturday) prior to enumeration (May 15, 2001), the data relate to the job of longest duration since January 2000. Persons with two or more jobs were required to report the information for the job at which they worked the most hours.\footnote{http://www12.statcan.ca/english/census01/Products/References/dict/appendices 92-378-XIE02002}

A large proportion of the Regina Qu'Appelle Health Region residents were employed in health and social services, retail trades and public administration/government services (Figure 5-22 and Table 5-6). A much larger proportion of Saskatchewan residents were employed in agriculture and related services. A large proportion of Saskatchewan residents were also employed in health and social services and retail trades.

The introduction of a new industry classification prevents direct comparison to previous census industry data.
Figure 5-22 Employment by Industry
Source: Statistics Canada Census, 2001
Saskatchewan = rest of Saskatchewan
Employment by Industry Type
Regina Qu'Appelle Health Region and Saskatchewan 2001

<table>
<thead>
<tr>
<th>All industries</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regina Qu'Appelle Health Region</td>
<td>125720</td>
<td>378300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health and social service</td>
<td>14450</td>
<td>11</td>
<td>41180</td>
<td>11</td>
</tr>
<tr>
<td>Retail trade</td>
<td>14150</td>
<td>11</td>
<td>39560</td>
<td>10</td>
</tr>
<tr>
<td>Public Administration/Government service</td>
<td>11345</td>
<td>9</td>
<td>19935</td>
<td>5</td>
</tr>
<tr>
<td>Accommodation &amp; food</td>
<td>9140</td>
<td>7</td>
<td>25660</td>
<td>7</td>
</tr>
<tr>
<td>Educational service</td>
<td>8090</td>
<td>6</td>
<td>28490</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>16075</td>
<td>13</td>
<td>37510</td>
<td>10</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>7740</td>
<td>6</td>
<td>10940</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural and related service</td>
<td>7530</td>
<td>6</td>
<td>65205</td>
<td>17</td>
</tr>
<tr>
<td>Construction</td>
<td>6665</td>
<td>5</td>
<td>20570</td>
<td>5</td>
</tr>
<tr>
<td>Other service</td>
<td>6360</td>
<td>5</td>
<td>17640</td>
<td>5</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6180</td>
<td>5</td>
<td>23200</td>
<td>6</td>
</tr>
<tr>
<td>Professional, scientific and technical services</td>
<td>5325</td>
<td>4</td>
<td>10850</td>
<td>3</td>
</tr>
<tr>
<td>Business/Wholesale trade</td>
<td>5115</td>
<td>4</td>
<td>14605</td>
<td>4</td>
</tr>
<tr>
<td>Information and cultural industries</td>
<td>4725</td>
<td>4</td>
<td>6215</td>
<td>2</td>
</tr>
<tr>
<td>Utilities</td>
<td>1610</td>
<td>1</td>
<td>3280</td>
<td>1</td>
</tr>
<tr>
<td>Mining and oil and gas extraction</td>
<td>1140</td>
<td>1</td>
<td>13310</td>
<td>4</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>80</td>
<td>0.1</td>
<td>150</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 5-6 Employment by Industry Type
Source: Statistics Canada Census, 2001
Saskatchewan = rest of Saskatchewan

5.6 Education

Education statistics can tell us a great deal about a community’s future. Individuals who do not graduate from high school are less employable, likely to have lower earned income and more likely to become dependent upon public support.

5.6.1 Highest Level of Education Achieved

In 2001, 15% of the Regina Qu'Appelle Health Region population, 20 years and over held a university degree at a bachelor’s level or higher. Forty-four percent had some form of post-secondary education. In comparison, only 11% in the rest of the province had a university degree, and 41% had some type of post-secondary education (Figure 5-23).

Comparable figures at a regional level are not available for the 1996 and the 1991 census; however, trends in the levels of educational attainment for the Regina Census Metropolitan Area between 1991 and 2001 are indicative of a better educated population. Since 1991, there has been a 23.9% drop in the working age population (aged 25-64) with less than high school diploma, and a 20% increase in the number who have a university degree.\(^\text{16}\)

\(^{16}\) Statistics Canada

Regina Qu'Appelle Health Region, Health Status Report 2004 Page 5-27
While these figures suggest an increase in the educational levels for some, it is disturbing to note that close to 30% of this population has not completed high school.

![Educational Attainment Chart]

**Educational Attainment (20 years and over)**
Regina Qu'Appelle Health Region and Saskatchewan, 2001

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>RQHR-2001</th>
<th>SK-2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 9th Grade</td>
<td>7.6</td>
<td>12.1</td>
</tr>
<tr>
<td>9 to 13 grade, no diploma</td>
<td>21.2</td>
<td>25.2</td>
</tr>
<tr>
<td>High School Graduate</td>
<td>11.5</td>
<td>10.6</td>
</tr>
<tr>
<td>Some College no degree</td>
<td>32.0</td>
<td>33.0</td>
</tr>
<tr>
<td>University without degree</td>
<td>12.0</td>
<td>8.0</td>
</tr>
<tr>
<td>University with degree</td>
<td>15.0</td>
<td>11.0</td>
</tr>
</tbody>
</table>

**Figure 5-23 Educational Attainment**
Source: Statistics Canada Census, 2001
Saskatchewan = rest of Saskatchewan

### 5.6.2 School Attendance

The 2001 census asked respondents if they had attended school in the 2000/2001 academic year. School attendance refers to either full-time or part-time (day or evening) attendance at school, college or university during the nine month period between September 2000 and May 15, 2001.

In the Regina Qu'Appelle Health Region, 60% of those aged 15-24 years old had attended school, full or part-time, in the 2000/01 school year. The percentage for the rest of Saskatchewan is lower at 56%. Compared to 1996, the number attending full time is 1% lower, and the percent not attending school is 1% higher.
5.6.3 Post-Secondary Education by Major Field of Study and Gender

The census collects data on the major field of study for people with university, college or trade credentials.

Of those Regina Qu’Appelle Health Region residents 15 years and older who obtained some post-secondary qualifications in 2001, the ranking of the major fields of study were different for each gender. Males tended to concentrate in the fields of applied science, technologies and trades (46.7%), commerce, management and business administration (10.5%) and agricultural and biological sciences/technologies (9.5%). The top ranking fields for females are commerce, management and business administration (27%), the health professions, sciences and technology (20%) and education, recreation and counseling services fields (20.1%).
Figure 5-25 Major Field of Study, by Sex, Regina Qu'Appelle Health Region, 2001
Source: Statistics Canada Census, 2001
Figure 5-26 Major Field of Study, by Sex, Saskatchewan
Source: Statistics Canada Census, 2001
Saskatchewan = rest of Saskatchewan

5.6.4 Worker's Compensation Injury Claims

The Worker’s Compensation Board (WCB) provides compensation to workers who experience work-related injuries, as long as the injury occurs while the person is doing their job and/or is on their work premises when the injury occurs.

From 1998 to 2001, in the Regina Qu'Appelle Health Region, the WCB processed a total of 29,976 claims, with an average of 7,494 claims per year. The majority of these persons (15,621 or 52%) did not lose time from work due to their injury. However, 14,355 or 48% did lose time from work\textsuperscript{17}.

\textsuperscript{17} Numbers are based on data received from the Worker’s Compensation Board.
In Figure 5-27 injuries are divided according to their injury type and then according to time loss or no time loss. Percentages are then calculated for these two categories. The time loss or no time loss proportions are considered proxy indicators of injury severity by the WCB.

The most common time-loss injuries are bodily reaction and exertion\textsuperscript{18}, transportation accidents and falls. Injuries occurring as a result fires and explosions, assaults and violent acts, exposure to harmful substance or environments, and contacts with objects and equipment are less likely to result in time loss from work.

![Percentage of Work Related Injuries, by Loss Time Claim](image)

**Figure 5-27 Work Related Injuries**

Source: Workers Compensation Board

### 5.7 Healthy Children

#### 5.7.1 At-Risk Birth Weights

Low birth weight (LBW) is the birth of an infant weighing less than 2500 grams, while very low birth weight (VLBW) is the birth of an infant that weighs less then 1500 grams. LBW and VLBW substantially increase the risk of morbidity and infant death. Infant mortality increases with decreasing birth weight.

High birth weight (HBW), refers to the proportion of live births that are 4000 grams or more. High birth weight is associated with higher rates of morbidity and mortality.

\textsuperscript{18} Bodily reaction and exertion includes such injuries as: overexertion in lifting, repetitive use, twisting and reaching.
According to Health Canada’s First Nations and Inuit Health Branch\textsuperscript{19}, the rate of low birth weight among Aboriginal people in 1999 (6\%) did not differ significantly from the overall Canadian rate (5.6\%). However the rate of high birth weight was significantly higher (22\% vs.12.2\%).

Over the time period 1988 to 2001, the proportion of HBW was much higher than for the VLBW and LBW in both the Regina Health District/Regina Qu'Appelle Health Region and the rest of Saskatchewan (Figure 5-28 and Figure 5-29). These proportions increased from 11.7\% in 1988 to 16.8\% in 2001 for the Regina Health District/Regina Qu'Appelle Health Region, and from 14.2\% to 17.3\% for the rest of the province.

The percentage of LBW births was higher than those that are VLBW for both the Regina Health District/Regina Qu'Appelle Health Region and the rest of Saskatchewan. These percentages have remained fairly stable throughout the time period in question.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure5-28.png}
\caption{Very Low, Low and High Birthweight as a Percentage of Live Birth, by Year Regina Health District and Region Qu'Appelle Health Region, 1988-2001}
\end{figure}

\textsuperscript{19} Health Canada, First Nations and Inuit Health Branch, \textit{A Statistical Profile On The Health Of First Nations in Canada}, 2003
During the 1990’s the proportions of VLBW and LBW were relatively stable at about 5%.

The proportion of VLBW, LBW and HBW births vary according to mother’s age. With HBW, the proportion is highest for 35+ years (15.5%), and lowest for those in the less than 20 year age group (11.6%).

Younger and older mothers had the highest percentage of low birth weight infants. Mothers aged 20 to 35 had the lowest percentage of low birth weights (Figure 5-30 and Figure 5-31).
The proportion of high birth weight infants is higher in the rest of Saskatchewan than in the Regina Qu'Appelle Health Region in each age group examined.

VLBW births for the rest of Saskatchewan follow the same pattern as with the LBW births. The higher proportions are seen with females below age 20 and over age 35, compared to those ages 20-34 years.
8.1.1 Premature Births

The premature birth rate is the number of live births with a reported gestational age at birth of less than 37 completed weeks, expressed as a proportion of all live births.

Since 1998, within the Regina Qu'Appelle Health Region, the proportion of pre-term births has fluctuated from a high of 7.5% in 1999 to a low of 6.7% in 2000.

The proportions for the rest of Saskatchewan varied minimally from 6.4% in 1998 to a high of 6.7% in 2001. The proportions for the rest of the province were slightly lower than those for the Regina Qu'Appelle Health Region throughout the time period 1998-2001.

Figure 5-32 compares proportions of pre-term births by age of mother. In both the Regina Qu’Appelle Health Region and the former Regina Health District, women under 20 years of age and over age 35 had higher proportions of pre-term births, compared to those aged 20-34 years. The proportions for the Regina Qu'Appelle Health Region are higher than those for the former Regina Health District for each age group.

Figure 5-33 compares the influence of maternal age on the proportion of pre-term births in the Regina Qu'Appelle Health Region and the rest of Saskatchewan from 1998-2001. The proportions for Saskatchewan are lower than those for the Regina Qu'Appelle Health Region in the under 20 and the 20-34 maternal age groups, and higher for the 35 and over age group.
Proportion of Pre-Term Births (<37 weeks), by Age of Mother
Regina Qu'Appelle Health Region and Saskatchewan, 1998-2001

<table>
<thead>
<tr>
<th>Mother's Age</th>
<th>Regina Qu'Appelle Health Region (RQHR)</th>
<th>Saskatchewan</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20</td>
<td>8.8</td>
<td>7.1</td>
</tr>
<tr>
<td>20-34</td>
<td>6.8</td>
<td>6.3</td>
</tr>
<tr>
<td>35+</td>
<td>7.8</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Figure 5-33 Pre-Term Birth, Regina Qu'Appelle Health Region and Saskatchewan
Source: Saskatchewan Health, Vital Statistics
8.1.2 Number of Physicians

There is no nationally agreed upon benchmark for the number of physicians per 100,000 population; however, based on the recommendations of the Saskatchewan Physician Resource Planning Task Force\(^20\) the following ratios per 10,000 population have been estimated as the desired standard of physician/population ratios:
- one general practitioner per 1,100 in the rural area (9.90/10,000)
- one general practitioner per 1,200 in the urban area (8.33/10,000)
- one general practitioner per 1,300 population in Regina and Saskatoon (7.69/10,000).

Figure 5-34, below, illustrates these ratios. These have been tabulated according to the boundaries of the former health districts that now make up the Regina Qu'Appelle Health Region in order to demonstrate the general practitioner to population ratios in the non-urban areas of the Region.

![Ratio of General Practitioners to Population by Location per 10,000](image)

Figure 5-34 Number of Physicians per 10,000 population
Source: Saskatchewan Health, Medical Services and Health Registration Branch

The ratio of general practitioners per 10,000 in the former Regina Health District was well above the recommended standard for the five year time period under examination. The ratios in the former Pipestone and Touchwood Qu’Appelle Health Districts fluctuated over that time period, but remained below the recommended standard.

8.2 Food Security

---

Food Security is defined as the state in which all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preference for an active and healthy life. Food insecurity prevents individuals and families from having sufficient resources to obtain food without need for emergency food supplies from food banks, meal programs, collective kitchens or other food security programs and services.

In the Regina Qu'Appelle Health Region, responses to food security range from food assistance programs, the largest of which is the food bank, to school feeding programs and self-help initiatives that offer longer-term solutions to help build self-reliance and community capacity.

The Canadian Community Health Survey, 2003 showed that about 6.6% of Regina Qu'Appelle Health Region residents were concerned about not having enough food, 4.4% did not have enough to eat and 10.9% did not eat the quality or variety of food desired.

Approximately 11% of 20-34 years old reported that they were concerned about not having enough food, 6.7% did not have enough to eat and 18.6% did not eat the quality or variety of food desired (Figure 5-36).

Of those aged 12-19 years, 5.4% reported that they were concerned about having enough food, 2% did not have enough to eat and 9.3% did not eat the quality or variety of food desired.

Seniors aged 65 and older were least likely to have food insecurity.
Figure 5-36 Did not Have Enough to Eat
Source: Statistics Canada, Canadian Community Health Survey, 2003

Figure 5-37 Quality and Variety of Food Desired
Source: Statistics Canada, Canadian Community Health Survey, 2003
8.3 Crime Trends

The data in this subsection is for the City of Regina, because information on crime trends is not available at the regional level.

Regina Police Services statistics show that criminal code offences, after increasing in the late 1990’s have now returned to roughly the same level as the mid 1990’s (Figure 5-38).

![Criminal Code offences](image)

**Figure 5-38 Crime Trends**

*Source: Regina Police Service*
8.3.1 Property crime

Most non-traffic criminal offences are property crimes. Property crime includes motor vehicle theft and other theft including possession, break and enters and fraud. Property crimes accounted for 61% of all criminal code offences in Regina in 2002. Property crimes are declining. In 2002, there were 10,437 property crimes per 100,000 population, down from a high of 12,305 per 100,000 population in 1996 (Figure 5-39).

![Property Crimes Chart]

**Figure 5-39 Trends for Property Crimes**
Source: Regina Police Service

Part of the reason for the decline in property crimes is the drop in the number of break and enters for both business and residential properties. Break and entering dropped from a high of 6,026 in 1995 to 3,489 in 2002 (Figure 5-40).

Residential properties (vs. commercial property) were much more likely to be a target for a break and enter.
In contrast to the trends for break and enters, the number of motor vehicle thefts have been climbing. A record 3,844 occurrences of auto theft were reported in 2001. In 2002, a total of 2,761 vehicle thefts were reported, which was a 39% drop from 2001, but four times higher than those reported in 1990 (Figure 5-41).

Assaults and violent crimes have also increased dramatically since the early 1990’s. The majority of violent crimes reported to the police are non-sexual assaults. From 1990 to 1997, the number of non-sexual assaults grew from 1,113 to 2,308, an increase of 110%. The number of sexual assaults increased from 101
to 213, an increase of 108%. Since 1998, the rate for both types of assault have decreased each year, but they are still much higher than they were in 1990 (Figure 5-42).

The number of violent crimes in the city grew from 1,521 in 1990 to a high of 3,605 in 2001. While the numbers dropped to 3,345 in 2002, they were more than double what they were in 1990 (Figure 5-43).
8.4 Outdoor Air Quality

In Saskatchewan, Air Pollution Index (API) monitoring is conducted at two monitoring stations, located in Regina and Saskatoon.

The API is an overall pollution index that is linked to the likelihood of experiencing harmful health effects. It enables the public to take appropriate actions to protect themselves from the adverse effects of air pollution. The overall API is reported on a scale of 0 to 100, with 100 being the best. The lower the number, the more polluted the air and the higher the risk to human health.

Monitoring of air toxins for the period 1990 to 2002 has shown that Air Pollution Index levels are low and well within the excellent to good range.

On an annual cycle, poor air quality usually occurs during summer and fall seasons. There have been occasional days in Regina during the summer and fall in which particulate matter would present a potential health risk to those individuals in the high-risk group (seniors, people with heart and lung conditions, smokers, children and pregnant women).

8.5 Drinking Water Quality

Safe drinking water is an integral component in the protection of public health and disease prevention. The City of Regina operates its water system under provincial government legislation called the "Water Regulations 2002". In 2004, of the 781 samples of water submitted by the City of Regina for bacteriological testing, 6 tested positive (Table 5-7).

<table>
<thead>
<tr>
<th>Summary of Bacteriological Testing for 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Samples Submitted in 2004</td>
</tr>
<tr>
<td>Total Negative Test Results with no bacteria detected</td>
</tr>
<tr>
<td>Total Negative Samples with bacteria &lt;200/100ml</td>
</tr>
<tr>
<td>Percent Negative Test Results</td>
</tr>
<tr>
<td>Total Positive Test Results on Initial Samples</td>
</tr>
<tr>
<td>Percent Positive Test Results on Initial Samples</td>
</tr>
</tbody>
</table>

Table 5-7 Drinking Water Quality
Source: City of Regina, Water Engineering Division, Engineering and Works Department

8.5.1 Surface Water Quality

The Regina Wastewater Treatment Plant and its effluents are regulated by Saskatchewan Environment. The Treatment Plant discharges effluent into the Wascana Creek which then meets with the Qu’Appelle River near the Town of Lumsden. The City of Regina monitors the quality of the surface water regularly.

---

22 City of Regina Drinking Water Quality and Compliance Report, 2004
23 A 'positive' test is one that detects the presence of either any coliform bacteria or background bacteria in excess of 200 colonies per 100 millilitres.
Water quality objectives are the recommended safe conditions or limits determined to protect each type of water use, such as recreation, irrigation, and to protect freshwater aquatic life. Objectives may be site specific or general, and are developed using available scientific literature and water quality criteria. The objectives used by the Regina Qu'Appelle Health Region are those developed by Saskatchewan Environment.

Surface water quality monitoring for Regina is done at two stations, located at Lumsden and the Edenwold Bridge. To assess the ground water quality associated with surface water, the water from the testing site is sampled and analyzed for total coliforms and \textit{Escherichia coli}.

Total coliforms are bacteria that live in water, soil and the gut of animals. Generally, these bacteria are harmless with the exception of a specific group called fecal coliforms. \textit{Escherichia coli} or \textit{E. coli} are fecal coliforms.

Even though total fecal coliforms are generally harmless, their presence is an indication that other harmful organisms and contaminants may be present in the drinking water.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Total Coliform</th>
<th>Fecal Coliform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational (non-contact)</td>
<td>5000</td>
<td>1000</td>
</tr>
<tr>
<td>Recreational (contact)</td>
<td>NA*</td>
<td>200</td>
</tr>
<tr>
<td>Irrigation</td>
<td>1000</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5-8 Surface Water Quality Standards
Source: Surface Quality Objectives, August 1997, Saskatchewan Environment
*NA = not applicable

<table>
<thead>
<tr>
<th>Parameter</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Coliforms</td>
<td>NA*</td>
<td>500</td>
<td>1400</td>
<td>NA*</td>
<td>275</td>
</tr>
<tr>
<td>Fecal Coliforms</td>
<td>NA*</td>
<td>130</td>
<td>97</td>
<td>NA*</td>
<td>77</td>
</tr>
</tbody>
</table>

Table 5-9 Surface Water Quality, Regina’s Surface Water
Source: City of Regina, Water Engineering Division, Engineering and Works Department
*NA = not available

Figure 5-44 and Figure 5-45 show the measurements for the concentration of total coliforms in surface water for Lumsden, and for the Edenwold Bridge for the time period 1999-2002. They were within acceptable limits for both for recreational (non-contact) standards. They were within acceptable standards for irrigation at the Edenwold Bridge, but did not meet these standards in 2000 at Highway # 11 at Lumsden.
At Highway # 47, where figures are available from 1992-2000, the measurements were within acceptable standards for both irrigation and non-contact recreation water for every year except 1993 (Figure 5-45).
Of all the contaminants in the drinking water, human and animal feces have been the biggest problem to public health. Figure 5-46 shows the concentration of fecal coliforms in surface water at Lumsden at Highway #11 for the time period 1998-2002. Both contact and non-contact recreation are included. The concentration was within acceptable levels for all years except 1988, 1994, and 1999, when they exceeded the standards for irrigation. They also exceeded the acceptable standards for contact recreation in 1988. They were very close to exceeding the acceptable levels for irrigation in 1991, and contact recreation in 1994.

![Concentration of Fecal Coliforms in Surface Water](image)

Figure 5-46 Fecal Coliforms, Surface Water, Lumsden
Source: Environmental Protection Branch, Saskatchewan Environment

From 1992-2002, the concentration of fecal coliforms at the Edenwold Bridge was well below the standards for contact and non-contact recreation. The concentrations were close to exceeding the limits for irrigation in 1995 and 2002 (Figure 5-47).
The concentration of fecal coliforms in the surface water at Highway #47 was within acceptable limits through out the time period 1992 to 2000 for contact and non-contact recreation, and irrigation (Figure 5-48).