

## **APPENDIX J**

### **Population Projection & Flow Calculations**

#### **Appendix J1 - Population Projection Calculations**

#### **Appendix J2 - Flow Calculations**

## **Appendix J1 - Population Projection Calculations**

## **POPULATION PROJECTION CALCULATION**

	<b>Total Population</b>
2006	1063
2007	1039
2008	1021
2009	1009
2010	1002
2011	942
2012	951
2013	961
2014	971
2015	980
2016	990
2017	1000
2018	1010
2019	1020
2020	1030
2021	1041
2022	1051
2023	1061
2024	1072
2025	1083
2026	1094
2027	1105
2028	1116
2029	1127
2030	1138
2031	1149
2032	1161
2033	1173
2034	1184

### **NOTES:**

1. Population projection Based on 2006 and 2011 Statistics Canada census data (see attached) indicating Red Rock's population to be 1063 in 2006 and 942 in 2011. 2007 to 2010 population estimates are pro-rated based on the census data. 2012 to 2034 population estimates are projected based on a 1% growth rate.

2. Design life of new plant to be 20 years, assuming completion in 2014, end of design life is therefore 2034.

[Home](#) > [Census](#) > [2006 Community Profiles](#) > [Search results for "red rock"](#) >



## 2006 Community Profiles

[Data table](#)
[Download](#)
[Map](#)
[Hierarchy](#)
[Related data](#)
[Help](#)

[ Build your own ]

Select a view

### Customized view


Red Rock  
Ontario  
(Township)

Ontario   
(Province)

Select another region

Select another region

Population and dwelling counts	Red Rock, Township			Ontario		
	Total	Male	Female	Total	Male	Female
Population in 2006 <sup>1</sup>	1,063			12,160,282 <sup>†</sup>		
Population in 2001 <sup>1</sup>	1,233			11,410,046 <sup>†</sup>		
2001 to 2006 population change (%)	-13.8			6.6		
Total private dwellings <sup>2</sup>	490			4,972,869		
Private dwellings occupied by usual residents <sup>3</sup>	435			4,554,251		
Population density per square kilometre	16.9			13.4		
Land area (square km)	62.93			907,573.82		

 [Definitions, sources and symbols](#)

**Source:** Statistics Canada, 2006 Census of Population.

**How to cite:** Statistics Canada. 2007. *Red Rock, Ontario (Code3558041) (table). 2006 Community Profiles.* 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007.  
<http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>  
(accessed March 8, 2012).

Date Modified: 2010-06-12

[Home](#) > [Census](#) > [Census Profile](#) > [Search results for "red rock"](#) >



## Census Profile

[Data table](#) | 
 [Download](#) | 
 [Map](#) | 
 [Hierarchy](#) | 
 [Help](#)

**Red Rock, Township**  
 Ontario  
 (Census Subdivision)


[Change geography](#)

**Thunder Bay, DIS**  
 Ontario  
 (Census division)

[Change geography](#)

### Population and dwelling counts

	Red Rock, TP	Thunder Bay, DIS
Population in 2011 <sup>1</sup>	942	146,057
Population in 2006 <sup>1</sup>	1,063	149,063
2006 to 2011 population change (%)	-11.4	-2.0
Total private dwellings <sup>2</sup>	472	71,235
Private dwellings occupied by usual residents <sup>3</sup>	407	62,318
Population density per square kilometre	15.0	1.4
Land area (square km)	62.93	103,719.51

 [Definitions, sources and symbols](#)

**Source:** Statistics Canada, 2011 Census of Population.

**How to cite:** Statistics Canada. 2012. *Red Rock, Ontario (Code 3558041) and Thunder Bay, Ontario (Code 3558) (table). Census Profile.* 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012.

<http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>  
 (accessed March 8, 2012).

Date Modified: 2012-01-02

## **Appendix J2 - Flow Calculations**

## Flow calculations

### ENTIRE POPULATION OF RED ROCK SERVICED BY THE SEWAGE PLANT

current 2011 Red Rock Township total population	942
future 2034 Redrock population	1184
Red Rock WWTP current serviced population (80% of total Pop.)	754
percapita sewage flow (avg. 2007-2011)	719 L/c/d
average day flow (avg. 2007-2011)	579.0 cum/d
Harmon Peak factor for the current conditions	3.9
current plant peak flow 98% of maximum peak flows in the last 5 yrs (2007-2011)	3,607 cum/d
Plant overall peak factor	6.2
serviced Population growth (2011 - 2034)	430
assumed I&I reduction in the flows from future dwellings	10%
future percapita sewage flow contr.	647 L/c/d
average day flow contr. From future serviced pop.	278 cum/d
harmon Peak factor future serv. Pop.	4.0
Peak I/I rate for future service area	227 L/c/d
Peak I/I for future service area	98 cum/d
future service area peak flow	1,213 cum/d
peak factor	4.4
future service area overall peak flow	4,820 cum/d
future average day flow	857 cum/d
overall peak factor future service area	5.6

### Assumptions

- 100% of future population serviced by the new plant
- current percapita sewage flow of 719 L/c/d is average of 2007-2011 percapita sewage flows
- current average day flow of 579 m<sup>3</sup>/d is average of 2007 - 2011 average day flows
- additional service population will have a percapita flow of 647 L/c/d which is 10% lower than current value of 719 L/c/d.
- current peak flow of 3,607 m<sup>3</sup>/d is 98 percentile of monthly peak flows