APPENDIX J

Population Projection & Flow Calculations

Appendix J1 - Population Projection Calculations

Appendix J2 - Flow Calculations

Appendix J1 - Population Projection Calculations

POPULATION PROJECTION CALCULATION

	Total		
	Population		
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.



Statistics Canada

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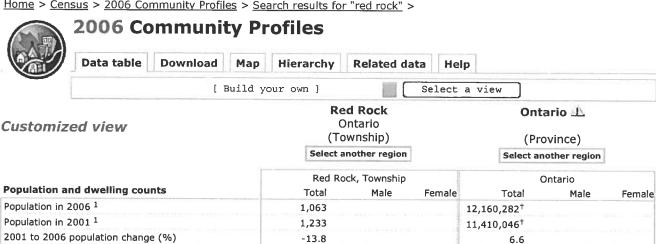
4,972,869

4,554,251

907,573.82

13.4

Home > Census > 2006 Community Profiles > Search results for "red rock" >



Definitions, sources and symbols

490

435

16.9

62.93

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

Total private dwellings 2

Land area (square km)

Private dwellings occupied by usual residents 3

Population density per square kilometre



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<u>Home</u> > <u>Census</u> > <u>Census Profile</u> > <u>Search results for "red rock"</u> >



Data table Download Map Hierarch	Help Red Rock, Township	Thunder Bay, DIS	
	Ontario (Census Subdivision)	Ontario (Census division)	
	Change geography	Change geography	
Population and dwelling counts	Red Rock, TP	Thunder Bay, DIS	
Population in 2011 ¹	942	146,057	
Population in 2006 ¹	1,063	149,063	
2006 to 2011 population change (%)	-11.4	-2.0	
Total private dwellings ²	472	71,235	
Private dwellings occupied by usual residents ³	407	62,318	
Population density per square kilometre	15.0	1.4	
Land area (square km)	62.93	103,719.51	

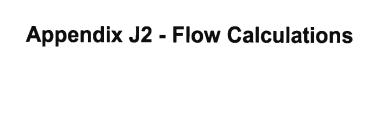
Definitions, sources and symbols

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



Flow calcualtions

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 m³/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 m3/d is 98 percentile of monthly peak flows