MUNICIPAL (WATER) USE DATABASE (MUD)

MUD2001 Municipal Aggregations Imputed Database
Variable Descriptions Document

The Municipal Water Use Database is designed to provide easy access to basic data on municipal water and wastewater. The 2001 database (spreadsheet) currently contains water (and some sewage) systems information from Canadian municipalities - mostly those with populations over 1000, so as to be comparable with previous MUD surveys. The total population of these municipalities is 28.9 million out of a total 2001 Statistics Canada Census population of over 30 million. Those responding to at least “populations served” represent 26.7 million. This municipal aggregations imputed (for non-response) database is now "Up-N-Running"; debugging and other tests have been completed. The data are usually released as an Excel spreadsheet format, and can be sorted into a variety of aggregations, including; provincial, regional, hydrologic, population size groups, and others.

1. General Information

   All of the data have been presented here on a "Municipality Specific" basis, rather than on a "Plant or System Specific" basis. In other words, the database quantifies the water actually used in each municipality, rather than the more specific water or sewage plant information. Some revision or estimation procedures were used when municipalities utilised shared systems. A primary advantage of this type of information is that all municipalities will have independent data, and possible double counts (within shared systems) will have been removed.

   Though in some ways more detailed than previous MUD surveys, the information presented in this 2001 MUD database is rather general, and is primarily aimed at the production of aggregate and summary statistics. The basic types of data collected can be summarised as follows: Municipal Population, Populations Served (water and sewer systems), Metering, Average Daily Flows (water and treated sewage), Water User Classes, Maximum Users, Water Source (Ground, Combined, or Surface), Water Conservation Programs, Water and Wastewater Revenues, and fields summarising quantity or quality problems, and water treatment

types. The database is designed to complement the Municipal Water Pricing database maintained by Environment Canada.

2. Data Sources

There were three main sources of data for this database. Firstly, the basic framework, and original raw data was provided from the 1986 MUNDAT database. Secondly, this data was corrected, revised, or updated on the basis of supplemental information collected as the result of seven pricing studies conducted by this department. These studies (in 1983, 1986, 1989, 1991, 1994, 1996, and 1999) have now directly contacted all municipalities with populations in excess of 1000. The third data source was the 2001 MUD Survey, complimented by a series of phone calls, in order to resolve any problems with the earlier data sources, and to collect data for new municipalities, municipal annexations, major non-respondents, and for some municipalities with major boundary changes.

The information presented in the database can be considered as current to December 31, 2001. Although the database is not designed for time series analysis, the previous data have been retained by Environment Canada as separate and independent files. A future municipal water survey is proposed for 2005, all information from this, or any other municipal water use studies will be used to further revise and expand this database.

For 2001, the survey underwent certain changes from previous iterations. For one thing, where past surveys restricted themselves to communities having 1000 or more residents, the 2001 survey included a representative sample of 660 communities with fewer than 1000 residents each. In addition, the scope of the survey was enlarged to meet the demand of water managers at all levels of government for more detailed information about municipal water use. Finally, for the first time ever, the survey went on-line with full data collection and limited search capability.

The 2001 survey collected useful information from approximately 880 municipalities having more than 1000 residents each. All these communities were among the 957 surveyed in 1999. Imputing for non-response where possible brought the total survey base for 2001 to 1271 municipalities, representing 26.7 million Canadians.

Response rates to the 2001 survey varied considerably, depending on the question. Overall, response rates were relatively low. This may have been due to the length of the survey, its unfamiliar

electronic format, the effect of municipal amalgamations, competition from more local or more specific surveys or data reporting requirements, and/or other factors.

The survey responses were supplemented with call-backs to large municipalities and Internet searches for readily available information. Some missing records were imputed from data collected in previous years, after adjusting for changes in the population in the intervening years. Where amalgamations had occurred, responses from the constituent municipalities were aggregated to develop the missing values.

Information from all these sources was compiled in the 2001 Municipal Aggregations Imputed Database, which was used to generate the statistics for this report. Any returns from the 660 surveyed rural communities each having fewer than 1000 residents were excluded from the database to avoid skewing the results, and because it was not possible to impute values for non-responding municipalities in this group—a group not included in previous surveys.

In the 2001 survey, the phrasing of key questions followed as closely as possible that of previous years so as not to obscure any emerging trends.

3. Definitions

The definitions and basic data parameters for each column of the standard spreadsheet are presented below in a "Column/Name Criteria" format.

Survey Response Variables (SRV) are the actual survey responses given by the section respondent. These are voluntary in compliance aspect, thus Environment Canada does not guarantee or vouch for the accuracy of such responses – though data checks are done on the data for generating reports and such. Some responses may have been edited by Environment Canada staff as part of such quality checks, though usually only after corresponding with the section respondent, or someone else from said jurisdiction.

MUD_ID – This is the main “key” variable to link data tables with other data tables by jurisdiction (municipality) and survey year. Each jurisdiction surveyed has a unique MUD_ID code for each year the survey was done.

Munic_ID_2001 – This is the “key” variable for jurisdictions (municipalities), to link tables with the Municipalities table. Each record has a unique number.

ResponseCode2001 – Code indicating response status to survey - 1 = responded, 2 = invalid skip, 6 = invalid skip (responded to pricing only), 7 = new aggregated or amalgamated municipality.

Created – This is the date the record was created – i.e., the date this survey section was responded to online or data otherwise entered (admin).

ResponseDATELast - This is the date the record was last modified – i.e., the date this survey section was last responded to online.

intTempCensusID – temporary code indicating a new aggregated or amalgamated municipality.

Amalgam - SRV (jurisdictional section Q2) – This is a y/n variable – indicates whether the municipality had amalgamated (or de-amalgamated) since the last survey, as indicated by them in question 2 of the jurisdictional section of the survey.

YearAmal – SRV (jurisdictional section Q2) – The year of amalgamation or de-amalgamation, as entered by the section respondent.

MuniAmal – SRV (jurisdictional section Q2) – This indicates the name(s) of the municipal-level jurisdiction(s) that were existing prior to the amalgamation, (or de-amalgamation), where such did occur.

CSD1999 - 1991 Standard Geographic Code - as defined by Statistics Canada. Seven digit; Province = first two digits:

10 = Newfoundland
11 = Prince Edward Island
12 = Nova Scotia
13 = New Brunswick
24 = Quebec
35 = Ontario
46 = Manitoba
47 = Saskatchewan
48 = Alberta
59 = British Columbia
60 = Yukon
61 = Northwest Territories

Census Division (3-digit), Subdivision (3-digit).

MUNICIPALITY1999 - Municipality - as listed by Statistics Canada. The population cut-off is at 1000. (Individual municipal water/wastewater systems within municipal areas are entered if they serve more than 200 people.) Most rural areas such as, Townships or Parishes are not included. (Exception to preceding; some parts of Census Metropolitan Areas (CMA's), or Census Agglomerations (CA's) with populations in excess of 1000 are included, see note at end.) When a municipal population has fallen below 1000, the municipal name is enclosed in brackets for one survey update. In some cases old municipal names (in brackets) may follow new names to reduce confusion. In the municipal water pricing database, separate area names (in brackets) identify areas within municipalities with differing water rates. The database does not list unincorporated areas as municipalities for 1999.

CMA_CA_Code1999 - C.M.A., C.A. Codes - Census Metropolitan, or Census Agglomeration area codes, as defined by Statistic Canada.

Pop1999 - 1999 population - from Statistics Canada Census.

CSD2001 – 2001 Standard Geographic Code - as defined by Statistics Canada. Seven digit; Province = first two digits (as per CSD1999, plus 62 = Nunavut,), Census Division (3-digit), Subdivision (3-digit).

Municipality2001 - Municipality - as listed by Statistics Canada. The population cut-off is at 1000. (Exception to preceding; some with populations currently below 1000 are included where they had above 1000 in previous survey years.)

Cens_ENG – Municipality type – descriptive.

LATITUDE - Latitude for each municipality. Source is usually “Gazetteer of Canada”.

LONGITUDE - Longitude for each municipality. Source is usually “Gazetteer of Canada”.

SSDB - Hydrometric Area – Sub-sub drainage basin - as defined by Environment Canada, Water Survey of Canada. (alpha-numeric/ hierarchical).

intProvinceID – 2-digit province ID code, as per CSD1999, plus 62 = Nunavut.

intSizeGroup_old – Old (1999) Size Group Code - groups are: 1, (less than 1000 population), 2, population 1000-1999, 3, population 2000-4999, 4, population 5000-49999, 5, population 50000-499999, and, 6, population 500000 plus. (A few “declining” municipalities with populations less than 1000 are retained as size group “1" in the interest of consistency across survey years).

SizeGroup2001 - Size Group Code for 2001 - groups are: 2, population less than 2000, 3, population 2000-4999, 4, population 5000-49999, 5, population 50000-499999, and, 6, population 500000 plus.

JurisdPop2001 - 2001 population - from Statistics Canada Census.

WebSite – SRV (jurisdictional section, start) – The municipal-level jurisdiction web site URL, if any, as given by the survey respondent at the start of the jurisdictional section of the survey.

PercentUrban - SRV (jurisdictional section Q1) – The percent of the municipal-level jurisdiction’s population that is deemed “urban” as given by them. This is entered in question 1 of the jurisdictional section of the survey: “Percent of your jurisdictional population that is urban”.

Percent_WPopTrt - SRV (jurisdictional section, QA3) – Residential population served in 2001 by a water distribution system (mains) with treatment by a facility in this municipality (% of municipal residential population).

Percent_WPopOth - SRV (jurisdictional section, QA3) – Residential population served in 2001 by a water distribution system (mains) with treatment by a facility in another municipality (% of municipal residential population).

Percent_WPopNoTt - SRV (jurisdictional section, QA3) – Residential population served in 2001 by a water distribution system (mains) with no treatment facility (% of municipal residential population).

Percent_WPopPers - SRV (jurisdictional section, QA3) – Residential population served in 2001 by only private systems (e.g., wells); no water distribution system (% of municipal residential population).

Percent_WPopHaul - SRV (jurisdictional section, QA3) – Residential population served in 2001 by only water “haulage” distribution (from any municipality) (% of municipal residential population).

QA3_RESPONSE – Boolean, 1 = valid survey response to QA3. Total of five previous variables should equal 100%.

NO_WTR_SYSTEM - Boolean, 1 = indicated that municipality (jurisdiction) has no public-serving water systems.

NO_WTR_FAC - Boolean, 1 = indicated that municipality (jurisdiction) has no public-serving water treatment facilities.

WFacPlan - SRV (jurisdictional section, QA4b) – We plan to add _____ new water facilities in our municipality in part or wholly during the 2002-2006 period.

QA4_RESPONSE - Boolean, 1 = valid survey response to QA4.

PopServWtr2001 - Population Served, Water – Population in the municipality served by any water system. Does not include population external to the municipality. Does not include private individual groundwater supplies.

PSW_Resp – Variable indicating the source of previous variable data (PopServWtr2001). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality), or “CallBack” (data gathered via one or more call-backs to municipality).

PopServWtrTrt2001 - Population Served, Water Treatment – Population in the municipality served by any water system with treatment. Does not include population external to the municipality. Does not include private individual groundwater supplies.

PSWT_Resp - Variable indicating the source of previous variable data (PopServWtrTrt2001). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality), or “CallBack” (data gathered via one or more call-backs to municipality).

Numb_WFac - SRV (jurisdictional section, QA4a) – Number of municipal water facilities in your municipality: ____ (This refers only to the main water treatment/ disinfection/ primary pumping facilities, NOT inline pumphouses, municipal water office locations, reservoirs, or other such facilities.)

WtrFac_NumbResp – Number of water facilities responding to at least water flows, from Section B of the 2001 MUD questionnaire.

TotalWtrFlow_m3yr – Total Yearly Flow, Water – in the municipality from all sources, in cubic metres. Does not include water provided to other municipalities.

WaterFlow_Resp - Variable indicating the source of previous variable data (TotalWtrFlow_m3yr). This can be one of: “NoSystem” (has been indicated that no water system exists in the municipality, thus flow data is inapplicable), “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population

change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality), or “CallBack” (data gathered via one or more call-backs to municipality).

TotADF_Overall - Average Daily Flow (A.D.F.) Water per capita – in the municipality from all sources, in litres per day per capita served. Does not include water provided to other municipalities.

ResWtr2001_m3yr - Total Yearly Flow, Water for domestic uses as determined from TotWtrFlow_m3yr, using PctDomWtrUse – in the municipality from all sources, in cubic metre. Does not include water provided to other municipalities or water not for residential uses.

TotADF_Domestic - Average Daily Flow (A.D.F.) Water per capita for domestic uses – in the municipality from all sources, in litres per day per capita served. Does not include water provided to other municipalities or water not for residential uses.

ADF_DOM_1999 - Average Daily Flow (A.D.F.) Water per capita for domestic uses, in 1999 – in the municipality from all sources, in litres per day per capita served. Does not include water provided to other municipalities or water not for residential uses.

Percent_WwPopTrt - SRV (jurisdictional section, QA5) – Residential population served in 2001 by a sewage collection system (sanitary/combined sewers) with treatment by a facility in this municipality (% of municipal residential population).

Percent_WwPopOth - SRV (jurisdictional section, QA5) – Residential population served in 2001 by a sewage collection system (sanitary/combined sewers) with treatment by a facility in another municipality (% of municipal residential population).

Percent_WwPopNoT - SRV (jurisdictional section, QA5) – Residential population served in 2001 by a sewage collection system (sanitary/combined sewers) with no treatment facility (direct discharge) (% of municipal residential population).

Percent_WwPopPer - SRV (jurisdictional section, QA5) – Residential population served in 2001 by only private systems (e.g., septic beds); no sewage collection system (sanitary sewers) (% of municipal residential population).

Percent_WwPopHaul - SRV (jurisdictional section, QA5) Residential population served in 2001 by only sewage ‘haulage’ collection (to any municipality) (% of municipal residential population).

QA5_RESPONSE - Boolean, 1 = valid survey response to QA5. Total of five previous variables should equal 100%.

NO_WW_SYSTEM - Boolean, 1 = indicated that municipality (jurisdiction) has no public-serving sewer systems.

PopServSew2001 - Population Served, Sewers – Population in the municipality served by any sewer system. Does not include population external to the municipality.

PopServSew_Resp - Variable indicating the source of previous variable data (PopServSew2001). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AmalgImpute”

(imputed using population weighted aggregation of municipalities forming this new municipality), or “AggImpute” (data estimated by aggregation of municipalities for the regional water authority in question).

PopServSewTrt2001 - Population Served, Sewage Treatment – Population in the municipality served by any type of sewage treatment. Does not include population external to the municipality. Does not include private individual septic tanks, and/or tile fields.

PopServSewTrt_Resp - Variable indicating the source of previous variable data (PopServSew2001). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality), or “AggImpute” (data estimated by aggregation of municipalities for the regional water authority in question).

WwFac - SRV (jurisdictional section, QA6a) – Number of municipal wastewater treatment facilities in your municipality: (This refers only to the main wastewater treatment/disinfection/primary pumping facilities, NOT inline pumphouses, municipal water office locations, or other such facilities).

WWFresponding_SectC - Number of wastewater facilities responding to at least water flows, from Section C of the 2001 MUD questionnaire.

QA6_RESPONSE - Boolean, 1 = valid survey response to QA6.

blnNO_WW_FAC - Boolean, 1 = indicated that municipality (jurisdiction) has no public-serving wastewater treatment facilities.

WwFacPln - SRV (jurisdictional section, QA6b) – We plan to add _____ new wastewater facilities in our municipality in part or wholly during the 2002-2006 period.

TotalAnnualWwFlow_responding - Total annual flow, Treated Sewage – includes only the sewage from the municipality, in cubic metres. Due to the difficulties of sewage metering, and a general lack of volume detail on the part of some municipalities, this value has been estimated or is missing in some cases.

ResMeter - Degree of domestic water metering, as a percentage of the population served.

ResMeter_Resp - Variable indicating the source of previous variable data (ResMeter). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), or “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality).

ResTaxed - SRV (jurisdictional section, QA13a) – What percentage of serviced households in your municipality are charged based on municipal property tax assessments?

ScheduleSubMethd - Pricing schedule submission method – Pricing database to be available separately.

ComMeter - Degree of commercial water metering, as a percentage of those served.

ComMeter_Resp - Variable indicating the source of previous variable data (ComMeter). This can be one of: “NoSystem” (has been indicated that no water system exists in the municipality, thus data is inapplicable), “Survey” (responded to survey), “Missing” (data is missing), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), or “CallBack” (data gathered via one or more call-backs to municipality).

ComTaxed - SRV (jurisdictional section, QA13b) – What percentage of serviced businesses in your municipality are charged based on municipal property tax assessments?

PctDomWtrUse - Water Use, Domestic – A municipal estimate of the total Flow used for domestic purposes, as a percent of total flow.

PctDom_Resp - Variable indicating the source of previous variable data (PctDomWtrUse). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), or “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality).

PctComIndWtrUse - Water Use, Industrial/Commercial/Institutional (and Municipal) – a municipal estimate of the total Flow used for I/C/I/M purposes, as a percent of total flow.

PctComInd_Resp - Variable indicating the source of previous variable data (PctComIndWtrUse). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AmalgImpute” (imputed using population weighted aggregation of municipalities forming this new municipality), or “ImputedEst” (in a couple cases estimating corrections of survey responses were done where imputing from previous years would be impossible or likely less accurate).

PctOtherWtrUse - Water Use, Leakage/SystemFlushing/Unknown – A municipal estimate of the total Flow as system losses, as a percent of total flow.

PctOther_Resp - Variable indicating the source of previous variable data (PctComIndWtrUse). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), or “SubtracImp” (a subtraction-based impute was done in some non-response cases, to ensure total water use equaled 100%).

AQ8_RESPONSE - Boolean, 1 = valid survey response to QA8. Total of Domestic, Commercial/Industrial, and System Losses should equal 100%.

MaxSectr - SRV (jurisdictional Section, Q8b) – The sector that causes the highest maximum daily water flows, from pull-down: “residential”, “commercial”, “industrial”, “unaccounted for”.

MaxSectr_Resp - Variable indicating the source of previous variable data (MaxSectr). This can be one of: “NoSystem” (has been indicated that no water system exists in the municipality, thus flow data is inapplicable), “Survey” (responded to survey), “Missing” (data is missing), or “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database).

PctSurfaceFlow2001 – Percent of the total annual flow that comes from surface water, as determined from 2001 survey section B and other sources.

SurfFlow_Resp - Variable indicating the source of previous variable data (PctSurfaceFlow2001). This can be one of: “Survey” (responded to survey), “Missing” (data is missing), “Imputed” (data has been imputed using previous survey database, adjusted for municipal population change), “NotReqd” (response is not required, usually because municipality has amalgamated into another – these have been filtered out of publicly released Excel database), “AggImpute” (data estimated by aggregation of municipalities for the regional water authority in question) or “CallBack” (data gathered via one or more call-backs to municipality).

blnSurfaceOnly2001 – Surface water only – Boolean variable indicating the municipality, is served exclusively by municipal surface water system(s). Does not include private individual surface supplies.

blnGrndOnly2001 - Groundwater only – Boolean variable indicating the municipality, is served exclusively by municipal groundwater (wells) system(s). Does not include private individual wells.

blnCombined2001 - Boolean variable indicating the municipality, is served by combined municipal groundwater (wells) system(s) and surface water supply. Does not include private individual wells or private individual surface supplies.

CommentA - SRV (jurisdictional section, end) – General comments.

Period - SRV (jurisdictional section, QA9) – Reporting Period, can be either; “Jan 1 2001-Dec 31, 2001” or “Fiscal Year 2001”.

PeriodStart – SRV (jurisdictional section, QA9) – Only applicable if “Fiscal Year 2001” is indicated under “Period” variable (defaults to “February 2000”).

WtrWwRev - SRV (jurisdictional section, QA10) – Total municipal revenues for water and wastewater for the year: $ (this total includes revenues both from water and wastewater charges, and revenues from other sources that are specifically for water and wastewater services).

WtrBill - SRV (jurisdictional section, QA11) – What are the main sources of water and wastewater revenues *(indicate % of total revenues from each category; please be exact as possible, total should equal 100%).* User directly through water billing
SewBill - SRV (jurisdictional section, QA11) as WtrBill, above, except is for: User directly through sewer surcharges

SewHaul - SRV (jurisdictional section, QA11) – as WtrBill, above, except is for: User directly through wastewater haulage billing.

MuniTax - SRV (jurisdictional section, QA11) – as WtrBill, above, except is for: Municipal government tax base.

SewFines - SRV (jurisdictional section, QA11) – as WtrBill, above, except is for: User directly through overstrength sewage surcharge fees.

RevOther - SRV (jurisdictional section, QA11) – as WtrBill, above, except is for: Others (please specify:).

OtherTXT - SRV (jurisdictional section, QA11) – Text entry relating to RevOther, above – Other water/wastewater revenue sources.

ConsA_ICIadvice - SRV (jurisdictional section, QA7) – Boolean, 1 = Industrial, Commercial, or Institutional advice on water conservation offered or planned to be offered within the municipality.

ConsB_PubAdvert - SRV (jurisdictional section, QA7) – Boolean, 1 = Public Advertising on water conservation offered or planned to be offered within the municipality.

ConsC_IncrWtrMeter - SRV (jurisdictional section, QA7) – Boolean, 1 = Increased water metering underway or planned within the municipality.

ConsD_InstEffEquip - SRV (jurisdictional section, QA7) – Boolean, 1 = Installation of water efficiency equipment underway or planned within the municipality.

ConsE_HomeAudits - SRV (jurisdictional section, QA7) – Boolean, 1 = Home audits underway or planned within the municipality.

ConsF_WtrEffKits - SRV (jurisdictional section, QA7) – Boolean, 1 = Water efficiency kit programs underway or planned within the municipality.

ConsG_LwnWtrBylaw - SRV (jurisdictional section, QA7) – Boolean, 1 = Lawn watering bylaws used or planned within the municipality.

ConsH_Others - SRV (jurisdictional section, QA7) – Boolean, 1 = Other water conservation programs planned or underway within the municipality.

ConsOth - SRV (jurisdictional section, QA7) – Text entry relating to ConsH_Others, above – Other water conservation measures or programs planned or underway.

UseResSF - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Single family residential water use.

UseResMF - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Multi-family residential water use.

UseComCo - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Commercial water use in the Commercial/Institutional sector.

UseComIn - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Institutional water use in the Commercial/Institutional sector.

UseComMu - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Municipal government water use in the Commercial/Institutional sector.

UseIndIn - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - non-agricultural Industrial water use in the Industrial sector.

UseIndAg - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Agricultural water use in the Industrial sector.

UseUnaFl - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - System Flushing water use in the System Losses “sector”.

UseUnaLe - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Water leakage in the System Losses ‘sector’.

UseUnaUn - SRV (jurisdictional section, QA8a) – Percentage breakout – column 1 of Q8a - Unaccounted for water ‘use’ in the System Losses “sector”.

UseResid - SRV (jurisdictional section, QA8a) – Percentage breakout – column 2 of Q8a - Residential water use sector.

UseComm - SRV (jurisdictional section, QA8a) – Percentage breakout – column 2 of Q8a - Commercial/Institutional water use sector.

UseIndus - SRV (jurisdictional section, QA8a) – Percentage breakout – column 2 of Q8a - Industrial water use sector.

UseUnacc - SRV (jurisdictional section, QA8a) – Percentage breakout – column 2 of Q8a - System Losses water use “sector”.

Res - SRV (jurisdictional section, QA8a) – Percentage breakout – column 3 of Q8a - Residential water use sector. (Technically the same as UseResid) Res, ComInd, and Unaccou together must total 100% for a valid response.

ComInd - SRV (jurisdictional section, QA8a) – Percentage breakout – column 3 of Q8a – Industrial/Commercial/Institutional combined water use sector. Res, ComInd, and Unaccou together must total 100% for a valid response.

Unaccou - SRV (jurisdictional section, QA8a) – Percentage breakout – column 3 of Q8a – System Losses water “use” “sector”. (Technically the same as UseUnacc) Res, ComInd, and Unaccou together must total 100% for a valid response.

TrtSum - derived from SRV, QB4 – Number of facilities indicating water treatment of some kind.

TrtMax - derived from SRV, QB4 – Boolean – Any facilities indicating water treatment of some kind.

blnWtrTrtResp – Boolean, indicates one or more facilities responded to QB4.

blnMicrostrain – blnCoagulat – blnSediment – blnSlowSand – blnpHControl – blnCorrosion – blnFluoridat – blnMembFilt – blnGranFilt – blnNone – blnOthers - SRV (water facility/system section, QB4) – Boolean variables indicating specific water treatment types used at one or more facilities in the municipality. Derived from facility responses to Q4 of section B of the 2001 survey. Options are: Microstraining (pre-treatment), Coagulation/Flocculation, Sedimentation, Slow Sand Filtration, pH control, Corrosion control, Fluoridation, Membrane filtration, Granular Filtration (gravity or pressure), None, and Others. Where “None” is checked, one or more systems have no treatment (other facilities in the municipality, if any, may still have some treatment). Please consult the survey response database for complete facility responses.

QuantityProblem - SRV (water facility/system section, QB8) - Problems, Water Quantity. Boolean indicating the municipality has experienced supply quantity problems.

RestrDaysSrcSum – derived from SRV (water facility/system section, QB8) – Use Restrictions, number of days in the survey data year when the municipality imposed water quantity restrictions at source – sum for responding facilities/systems. Please consult the survey response database for complete facility responses.

RestDaySrcMax - SRV (water facility/system section, QB8) – Use Restrictions, number of days in the survey data year when the municipality imposed water quantity restrictions at source –

Maximum for responding facilities/systems. Please consult the survey response database for complete facility responses.

RestrDaysFacSum - as RestrDaysSrcSum, but at facility.

RestDayFacMax - as RestrDaysSrcMax, but at facility.

RestrDaysDistSum - as RestrDaysSrcSum, but in distribution system.

RestDayDistMax - as RestrDaysSrcMax, but in distribution system.

QualityProblem - SRV (water facility/system section, QB9a) – Problems, Water Quality. Boolean indicating the municipality has experienced water supply quality problems.

ChemSum - SRV (water facility/system section, QB9a) – Sum of number of days in the survey data year when the municipality had water quality problems of a Chemical Nature – Sum for responding facilities/systems. Please consult the survey response database for complete facility responses.

ChemMax - SRV (water facility/system section, QB9a) – Maximum Number of days in the survey data year when the municipality had water quality problems of a Chemical Nature – Maximum for responding facilities/systems. Please consult the survey response database for complete facility responses.

MicroSum - as ChemSum, but for Microbiological problems.

MicroMax - as ChemMax, but for Microbiological problems.

AesthSum - as ChemSum, but for Aesthetic problems.

AesthMax - as ChemMax, but for Aesthetic problems.

BoilWaterUsed – SRV (water facility/system section, QB9b) – Boolean – Boil Days used.

BoilDaysSUM - SRV (water facility/system section, QB9b) – Boil Days, as above, quality restrictions. Use Restrictions, number of days in the survey data year when the municipality imposed Boil Water Orders. Sum for responding facilities/systems.

BoilDaysMAX - SRV (water facility/system section, QB9b) – Boil Days, as above, quality restrictions. Use Restrictions, number of days in the survey data year when the municipality imposed Boil Water Orders. Maximum for responding facilities/systems.

blnChlorine – blnChloramination – blnChlorDioxide – blnOzone – blnUV – blnOthDisin – blnNoDisinf - SRV (water facility/system section, QB3) – Boolean variables indicating specific water disinfection types used at one or more facilities in the municipality. Derived from facility responses to Q3 of section B of the 2001 survey. Options are: Chlorine, Chloramination, Chlorine Dioxide, Ozone, UV, Other Disinfection, or None at this stage. Where “None at this stage” is checked, one or more systems or stages have no disinfection (other facilities in the municipality, if any, may still have some disinfection). Please consult the survey response database for complete facility responses.

4. Supplemental notes to the 2001 update

1. It has always been the intention of this database to cover all areas where there are, or could possibly be municipal water or

wastewater services. About 20 to 25% of the Canadian population lives in rural surroundings, much of which is unlikely to ever be provided with municipal piped services. The actual legal definitions of “City”, “Village”, “Town” etc. are set by each province, and in some cases may contain what would otherwise be called “rural” population.

2. The database has also included components of Statistics Canada’s “Census Metropolitan”, and “Census Agglomeration” areas (if over 1000 population) as these areas are close to major municipal systems, and might logically be expected to be serviced. Since one of the major definitions of C.M.A.’s, or C.A.’s is based upon percentage of people working (i.e., commuting) in the central area, large areas which would otherwise be considered as “rural” have also been included in the MUD database.
3. Aboriginal population. In many cases during the 1991 Statistics Canada Census, access was not available, or enumeration was incomplete of residents of various aboriginal communities. This deficiency was mostly corrected in the 1996 Census. The MUD database has not surveyed aboriginal communities in the past. (Prior to 1991, there were few aboriginal communities over 1000 population.) Aboriginal population resident in surveyed areas, as well as those served by neighbouring municipalities (as “rural population”, column AH) is included in the database. A review of the 1996 Census Data indicated that there were 60 aboriginal communities in Canada, with populations of over 1000. Many of these would meet the definitions above for inclusion in the database. This is a significant data gap, and will be investigated.

5. Summary

The database is designed to provide basic municipal water and wastewater statistics, in commonly used aggregations such as Provinces, population size ranges, basic types of systems etc. Up to 200 requests a year are received by this department for this type of information from a wide variety of sources including other government agencies, academia, and market research, as well as others. Many other data sortings or aggregations may be possible.