

TABLE 4.1

COMPARISON OF WASTEWATER COLLECTION SYSTEM DESIGN STANDARDS OF VARIOUS ALBERTA MUNICIPALITIES

Parameters	Grande Prairie (Recommended)	Grande Prairie (Current)	Provincial	Edmonton	St. Albert	Spruce Grove	Parkland County	City of Westaskiwin	City of Red Deer	RM Wood Buffalo	Strathcona County	Ft. Saskatchewan	City of Leduc	Lloydminster	Drayton Valley
Minimum pipe size (mm)															
Residential	200	200	200	200			200	200		200	200	200	200	200	200
Commercial	250	250	200	200			250	250		250	250	200		250	250
Industrial	250	250	200	200			250	250		250	250	200		250	250
Residential Flows															
Average Flow															
Per Capita (L/d)	275	275		300	300	364	350	395	320	360	375	315	360	360	350
Per Bed Room (L/d)			675												
Peaking Factor	$2.6(p)^{-0.1} > 1.5$	$1+(14/(4+p^{0.5})) > 3.0$	$1+(14/(4+p^{0.5})) > 2.5$	$2.6(p)^{-0.1} > 1.5$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5})) > 2.5$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5})) < 3.5$	$1+(14/(4+p^{0.5})) > 3.0$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5}))$	$1+(14/(4+p^{0.5}))$
Population Density (Persons/Ha)	RR=35 RL=35 RG=40 RT=83.2 RM=118.4 RH=198.4	RR=32 RL=80 RG=64 RT=83.2 RM=118.4 RH=198.4		RF1=96 RF2=170 RF3=116 RF4=102 RF5=133 RA7=255	Residential=40		Each Household=3.5	R1=95 R2=105 R3=230 R4=250		Each Household=3.5 Residential=40	Each Household=3.5	Residential=40	Residential=40	Residential=54	R1=95 R2=105 R3=230 R4=250
Non-Residential Flows															
Highway Commercial Avg. Flow (m <sup>3</sup> /Ha/d)	26	26	40	20	25		40	40	40 (17.28 minimum)	17.28	18	25	22.5	22.5	40
Other Commercial Avg. Flow (m <sup>3</sup> /Ha/d)	20														
All Industrial Avg. Flow (m <sup>3</sup> /Ha/d)			30	20	25		30	20	30 (17.28 minimum)	17.28		25	16.875	18.0	20
Light Industrial Avg. Flow (m <sup>3</sup> /Ha/d)	10	10									18				
Heavy Industrial Ave. Flow (m <sup>3</sup> /Ha/d)	20	20													
Institutional Ave. Flow (m <sup>3</sup> /Ha/d)	30	30			25										
School Ave. Flow (m <sup>3</sup> /Ha/d)	20	20													
Peaking Factor	$6.659 (Q_{avg})^{-0.168} < 5$	2.0	$6.659 (Q_{avg})^{-0.168} < 5$	$25 > 10(Q_{avg})^{-0.45} > 2.5$	3.0		3.0	3.0	$10(Q_{avg})^{-0.45} > 2.5$	3.0 to 3.5	Individually Considered		3.0		3.0
Infiltration/Inflow															
Gross Area (L/s/Ha.)	0.28	0.10	0.28	0.28	0.185	0.28	0.28	0.2	0.20	0.28	0.50	0.069	0.28		0.20
Sag Manhole (L/s)	0.40		0.40	0.40			0.40			0.40	0.40	0.40	0.40		
Roof Leader & Weeping Tile (L/s/ha)										0.60					
Pipe Flow															
Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula	Manning Formula
Manning "n" Factor															
PVC						0.011				0.012				0.013 to 0.026	
Concrete						0.013				0.013					
All Pipes	0.013	0.013		0.013	0.013		0.013	0.013			0.013	0.013	0.0		0.013
Required Design Flow	Peak Flow/0.864	Peak Flow	Peak Flow/0.864	Peak Flow/0.864	Peak Flow	Peak Flow	Peak Flow	Peak Flow	Peak Flow/0.864	Peak Flow/0.864	Peak Flow	Peak Flow	Peak Flow/0.864	Peak Flow	Peak Flow

NOTE:  
Blank spaces indicate that information is unavailable

LEGEND  
mm=millimeter  
L/d=Litre per Day  
Ha.=Hectare  
m<sup>3</sup>/ha/d=cubic metre per hectare per day  
L/s/ha=Litre per second per hectare  
L/s=Litre per second  
p=population in 1000