

Appendix 12.6

Definition of Time Periods and Population Scaling Factors

A12.6-1 **DEFINITION OF TIME PERIODS**

The population data is presented in five time periods within a week: night, jammed peak, peak, weekend day and working day. The classification of the time periods is shown in *Table 1.1*. The frequency of events occurring at a certain time period is calculated by multiplying the time period percentage shown in *Table 1.1* and the event frequencies (listed in *Table 12.17* of the *Main Report*). For events related to transport of chlorine, which do not take place at night, the frequencies at any other time periods is calculated by doubling the corresponding time period percentages.

Table 1.1 *Definition of Time Periods*

From	To	Mon-Fri	Sat	Sun	
00:00	01:00	Night	Night	Night	
01:00	02:00	Night	Night	Night	
02:00	03:00	Night	Night	Night	
03:00	04:00	Night	Night	Night	
04:00	05:00	Night	Night	Night	
05:00	06:00	Night	Night	Night	
06:00	07:00	Night	Night	Night	
07:00	08:00	Peak	Peak	Weekend day	
08:00	08:15	Jammed Peak	Jammed Peak	Weekend day	
08:15	09:00	Peak	Peak	Weekend day	
09:00	10:00	Working day	Working day	Weekend day	
10:00	11:00	Working day	Working day	Weekend day	
11:00	12:00	Working day	Working day	Weekend day	
12:00	13:00	Working day	Working day	Weekend day	
13:00	15:00	Working day	Peak	Weekend day	
15:00	16:00	Working day	Weekend day	Weekend day	
16:00	17:00	Working day	Weekend day	Weekend day	
17:00	19:00	Peak	Weekend day	Weekend day	
19:00	20:00	Night	Night	Night	
20:00	21:00	Night	Night	Night	
21:00	22:00	Night	Night	Night	
22:00	23:00	Night	Night	Night	
23:00	00:00	Night	Night	Night	
Days		5	1	1	
Peak	(hours)	18.75	3.75	0	13.39%
Jammed Peak		1.25	0.25	0	0.89%
Working day		40	4	0	26.19%
Weekend day		0	4	12	9.52%
Night		60	12	12	50.00%

Data on the residential population used in this study are based on the 2011 Population Census data for the TPU-SB units, available from the Government website.

These actual 2011 residential population levels have been scaled up or down according to the population trends determined from the area-specific 2011-based TPEDM PDZ projections. For population types other than residential (such as schools populations based on the maximum classroom capacity), no growth has been assumed.

Table 2.1 provides the scaling factors for different PDZs determined from the 2011-based TPEDM projections for the years 2011, 2016 and 2031, and the derived 2016/2011 and 2031/2011 population scaling factors. Should the scaling factor found to be less than 1, on conservative approach, no reduction has been assumed (i.e. scaling factor of 1 will be applied that zero growth is assumed in year 2016 and 2031 despite decreasing trend in the areas where applicable).

Table 2.1 Population Data from 2011-based TPEDM by PDZ

PDZ	2011	2016	Scaling factor 2016/2011	2031	Scaling factor 2031/2011
205	37,300	39,500	1.06	40,700	1.09
206	11,750	11,450	0.97	10,750	0.91
208	17,100	16,550	0.97	14,850	0.87
209	30,550	39,850	1.30	36,650	1.20
210	28,900	27,300	0.94	31,550	1.09
211	24,250	26,050	1.07	24,400	1.01
212	47,150	71,350	1.51	69,700	1.48
384	12,500	13,000	1.04	12,300	0.98
385	32,300	32,450	1.00	32,350	1.00

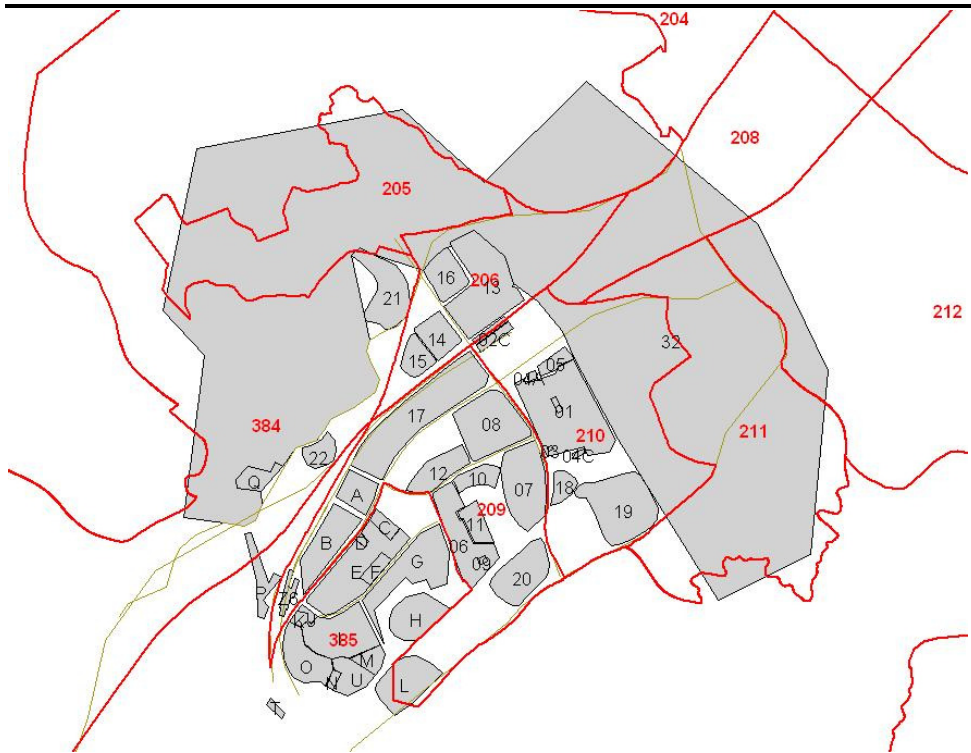
Each population was then scaled according to the PDZ where it is located. The locations of relevant PDZ areas are shown in *Figure 2.1*. Table 2.2 shows the residential population units outside that are associated with each PDZ. For the exact locations of the population units see *Figure 12.8* of the *Main Report*.

As can be seen, only the population unit 32 spreads across several PDZs. In this case the scaling factor has been evaluated considering the different areas that the population unit 32 overlaps. Considering the geographical locations of units 13, 14, and 21, a scaling factor based on PDZ 206 is used for unit 21.

Table 2.2 PDZ Scaling Factors Used for Residential Population Units

Residential population unit	PDZ scaling factor used
1	210
6	209
7	209
8	209
12	209
13	206
14	206
17A	209
18	210
19	210
20	209
21	206
22	384
32	Average of 205, 206, 208, 210, 211, 212, 384
E	385
F	385
G	385
H	385
H1	209
H2	209
I	385
O	385
P	Average of 384 and 385
Q	384
U	385

Figure 2.1 Locations of PDZ areas (for illustration purpose)



Note: the grey polygons represent the population units considered in the QRA. For their full description see Table 12.3 and Figure 12.8 of the Main Report.