

This tool is developed by Salman Tariq
Scheduled Water Maintenance Engineer and
Charles Swain (Water Maintenance Manager).
Please reach out at salman.tariq@sewa.co.uk

Table 1: Individual factors Ratings*		
Factors	Severity rating (3=extremely high; 1= minor)	Severity rating definition
Years since last ELS	5	If ELS survey was conducted 10 or more years ago
	4	If ELS survey was conducted between 7 and 9 years ago
	3	If ELS survey was conducted between 4 and 6 years ago
	2	If ELS survey was conducted between 2 and 3 years ago
	1	If ELS survey was conducted 1 year or less ago
Scheduled leak no./km	5	If greater than 4 leaks per KM found through ELS
	4	If greater than 3 but less than or equal to 4 leaks per KM found through ELS
	3	If greater than 2 but less than or equal to 3 leaks per KM found through ELS
	2	If greater than 1 less than or equal to 2 leaks per KM found through ELS
	1	If less than 1 leaks per KM found through ELS
Reactive leak no./km	5	If greater than 8 leaks per KM found through ELS
	4	If greater than 6 but less than or equal to 8 leaks per KM found through ELS
	3	If greater than 4 but less than or equal to 6 leaks per KM found through ELS
	2	If greater than 2 but less than or equal to 4 leaks per KM found through ELS
	1	If less than 2 leaks per KM found through ELS
Sotto customer coverage	5	If 0% coverage
	4	If coverage greater than 0% but less than or equal to 25%
	3	If coverage greater than 25% but less than or equal to 50%
	2	If coverage greater than 50% but less than or equal to 75%
	1	If greater than 75% coverage
Average age	5	If avg pipe age greater than 40
	4	If avg pipe age greater than 30 but less than or equal to 40
	3	If avg pipe age greater than 20 but less than or equal to 30
	2	If avg pipe age greater than 10 but less than or equal to 20
	1	If avg pipe age less than 10
% non-plastic pipes	5	If % non-plastic pipes greater than 80%
	4	If % non-plastic pipes greater than 60% but less than or equal to 80%
	3	If % non-plastic pipes greater than 40% but less than or equal to 60%
	2	If % non-plastic pipes greater than 20% but less than or equal to 40%
	1	If % non-plastic pipes less than 20%
Customer density	5	If customer density greater than 200
	4	If customer density greater than 150 but less than or equal to 200
	3	If customer density greater than 100 but less than or equal to 150
	2	If customer density greater than 50 but less than or equal to 100
	1	If customer count less than 50

* Ratings are introduced to provide easy interpretability and clear severity thresholds for each factor, and cancel out the effects of high value bias and outliers

Table 2: Individual factor contribution		
Priority	Factors	Weightage
* Priority is directly proportional to years since	Years since last ELS	15%
	Leak no./km (scheduled)	15%
	Leak no./km (reactive)	15%
	Sotto customer coverage	10%
	Average age	10%
	% non-plastic pipes	10%
	Customer density	15%
		100%

Table 3: Factors definition	
Factors	Definition
Years since last ELS	Years since last leak detection survey was carried out to detect leaks within a zone.
Leak no./km (scheduled)	Leak found per KM in a zone through leak detection surveys.
Leak no./km (reactive)	Leak detected per KM in a zone through reactive approaches.
Sotto customer coverage	Sotto installed relative to the total customer count in a zone.
Average age	Average age is taken as the age of each pipe divided by total number of pipes in a zone.
% non-plastic pipes	Total length of non-plastic pipes in a zone divided by total pipe length
Customer density	Total customers per KM in a zone.

Table 4: Zones removed	
Zones	Reason of removal
YVW Preston Res	0 customer count
Apollo Parkways E/T	not found in GT viewer
BMR Area C Private Scheme (105.0m LWL)	not found in GT viewer
Bocoma Reservoir PMA	not found in GT viewer
Cardinia Reservoir Sub Zone	not found in GT viewer
Chrimside RW	not found in GT viewer
Chrimside RW (ETP)	not found in GT viewer
Clyde LL RW	not found in GT viewer
Clyde LL RW (ETP)	not found in GT viewer
Cranbourne East H/L RW	not found in GT viewer
Cranbourne South H/L RW	not found in GT viewer
Cranbourne South H/L RW (ETP)	not found in GT viewer
Cranbourne Tank RW	not found in GT viewer
Cranbourne Tank RW (ETP)	not found in GT viewer
Cranbourne West RW	not found in GT viewer
Cranbourne West RW Booster	not found in GT viewer
Elizabeth DR PRV	not found in GT viewer
Fennite Gully Res.	not found in GT viewer
Future Keyborough Sth P.R.	not found in GT viewer
Goolgowie St. PRV	not found in GT viewer
Harrisfield P.R.	not found in GT viewer
Narrow ST P.R. Zone	not found in GT viewer
Landscape Dr Booster	not found in GT viewer
Muskells Hill Res.	not found in GT viewer
Mt View Res. (TYW)	0 customer count
Mt Waverley Res. (YVW)	YVW zone
NEILL ST PRV	not found in GT viewer
Officer H/L RW	not found in GT viewer
Officer H/L RW (PE)	not found in GT viewer
Officer Tank L/L RW	not found in GT viewer
Safety Beach H/L P.R. Zone	not found in GT viewer
Shinda Township Res.	0 customer count
Suburban P.R.	0 customer count
Cardinia Reservoir Mt. View Sub Zone	0 customer count
Cheong's Hill E/T P.R.	0 customer count
Croydon South P.R.	0 customer count
Dooaba WB102	0 customer count
Dublin Road P/B	0 customer count
Gembrook PRV	0 customer count
Heathmont P.R.	0 customer count
Heathmont P.R.	0 customer count
Johns Hill Reservoir	0 customer count
Johns Hill Silo WB184	0 customer count
Kew Res.	0 customer count
Malvern East P.R.	0 customer count
Mt. Majestic	0 customer count
Straggbank WB107	0 customer count
Surrey Hills Res.	0 customer count
Vermont South	0 customer count
Vermont South (Livingstone Rd)	0 customer count
Micham Res. (2)	0 pipe length
Fremont Res.	0 pipe length
Mollington Rd PRV	0 pipe length
BMR Area A Private Scheme (118.0m LWL)	Private scheme
BMR Area B Private Scheme (113.0m LWL)	Private scheme
BMR Area C Private Scheme (110.0m LWL)	Private scheme
BMR Area D Private Scheme (109.0m LWL)	Private scheme
BMR Area E Private Scheme (107.0m LWL)	Private scheme
BMR Area F Private Scheme (106.0m LWL)	Private scheme

Table 5: Zones never surveyed for leak detection	
Zone	Years since last ELS
Bayview Rd Scheme (118.0m LWL)	ELS started 12 years ago. For these
Cameron ST P.R. Zone	
Serpentine Lane Booster	
Coolart Rd PR	
Cranbourne South H/L	
Barbton Cms P.R.	
Highland DR Booster	
King RD Booster	
King RD Tank	
Officer Low Level	
Officer P.R. Zone	
Xtd Coach Rd Booster	
Waterside Dr Booster	
Wooralla Drive P.R. Zone	
Aura Vale RD	
Barker RD Booster	
Gembrook Tower	
Hove RD Booster	
Pakenham East Booster Zone	
Peak DR Booster	