

## Water Quality Model

### Summary

The water quality model works with the Stormwater model, TR-55, to calculate the effect of landcover on the amount of pollutants and suspended solids in surface water runoff. As with TR-55, the water quality model is based on a storm event calculation; that is, how landcover affects the runoff from a typical 2 year, 24-hour storm. This relationship between the landcover and water quality is predicted using the L-THIA spread sheet model, which was developed by Purdue University and the U.S. Environmental Protection Agency (EPA). The model works with TR-55 by making use of the curve number system: matching curve numbers with specific pollutant loadings during a storm event.

### Technical Methodology

Don Woodward of the Natural Resources Conservation Service (NRCS) developed the CITYgreen water quality from TR-55 and L-THIA using the following default values for loadings:

Land use	Curve Number	Nitrogen (mg/L)	Phosphorus (mg/L)	Suspended solids (mg/L)	Zinc (ppm)	Lead (ppm)	Copper (ppm)	Cadmium (ppm)	Chromium (ppm)	BOD (ppm)	COD (ppm)
Paving Lot	98	1.807	0.443	21	0.080	0.009	0.009	0.0075	0.0021	49.5	25.5
Commercial	85	2.096	0.443	6	0.180	0.013	0.009	0.0075	0.0100	116.0	23.0
Urban	83	2.096	0.209	6	0.080	0.009	0.009	0.0075	0.0021	49.5	25.5
Forest	73	0.780	0.150	3	0.006	0.005	0.010	0.0010	0.0075	0.0	0.5

### References

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