Rational Method

The Rational Method is a computer program accessed through WMS, which utilizes digital terrain data to outline watershed and sub-basin boundaries and calculate geometric parameters used in hydrologic modeling. It is the most widely used method for urban drainage design.

The rational method is used to approximate the flood peak for a given rainfall intensity. The rational method equation is:

Q = kCiA

where: donde:

	English	Español
Q =	peak flow (m^3/s)	gasto maximo (m^3/s)
k =	conversion factor of 0.00278 (metric)	coeficiente de unidades 0.00278 (métricas)
C =	dimensionless runoff coefficient	coeficiente de escurrimiento
i =	rainfall intensity (cm/hr)	intensidad de la lluvia (cm/hr)
A =	catchment area (ha)	Hectáreas drenadas (ha)

Both the catchment area, A, and the runoff coefficient, C, can be computed using GIS. The rational method interface in WMS includes tools to generate intensity-duration-frequency curves to determine i, and several different dimensionless hydrograph methods that can be used for developing runoff hydrographs from peak flows.