

System (GIS) data from Palm Beach County, municipalities have improved their land use maps and been able to have exclude roadways from each parcel of land. As a result, the total area in the major highway category has increased significantly. The Low, Medium and High Residential categories in all of the watersheds have also had considerable adjustments with a large portion of the previously categorized Low Density Residential land uses reclassified as either Medium or High Density Residential.

#### **D. Event Mean Concentration**

The EMC is defined as the total load of a given parameter divided by total runoff volume for a storm event. The quality of untreated runoff can be expressed as the EMC.

During a storm event, the concentration of pollutants in the runoff varies considerably over the time of the event. The concentration of oily substances on roadways is highest during the first part of the storm, and then declines as the bulk of the material is washed off. This is known as the “first-flush” phenomenon. The concentration in the first-flush runoff is not representative of the entire storm. In order to estimate the loading from a storm, the flow-weighted average concentration (or EMC) is necessary.

There are many datasets available for EMC values. The EMC values for this permit cycle were taken from the City of Lake Worth Stormwater Master Plan report completed by CDM Smith in November 2012. These values were chosen because this evaluation was recently completed and is representative of all of the Palm Beach County MS4s. In their evaluation, CDM Smith chose the EMC values appropriate for each land use category in the study area. The source for the EMC values include NPDES data, Harper’s studies, and NURP studies. The values used in the model are shown below.

### Event Mean Concentration for Parameters by Land Use (mg/l)

Land Use	BOD5	TSS	TP	TN	Cu	Zn
Agriculture/Pasture	3.8	43.2	0.430	1.86	0.013	0.021
Commercial	17.0	94.0	0.430	2.20	0.006	0.170
Heavy Industrial	11.0	64.0	0.350	1.27	0.015	0.096
Office/Light Industrial	17.0	94.0	0.430	2.20	0.006	0.170
Forest /Open	13.0	16.0	0.210	0.71	0.001	0.010
Low Density Residential	10.0	21.0	0.280	1.18	0.005	0.026
Medium Density Residential	7.0	26.0	0.340	1.64	0.008	0.042
High Density Residential	12.0	74.0	0.450	1.90	0.010	0.100
Water	3.0	11.0	0.020	1.18	0.001	0.006
Major Highways	5.2	46.0	0.200	1.10	0.025	0.116
Cropland	3.8	43.2	0.430	1.86	0.013	0.021
Wetlands	3.0	11.0	0.020	1.18	0.001	0.006

### E. Rainfall

Rainfall amounts were obtained from the SFWMD DBHydro database. Rainfall recording stations around the county were searched for precipitation data from January 1, 2002 through December 31, 2012. Reported monthly rainfall amounts were added together to obtain a yearly total for each station, and a ten-year station average was calculated for each station. The ten-year average for each station was used to determine a yearly rainfall average for the entire County.

The rainfall summary below shows the resulting average rainfall information.