

**Recommendation for:
Land Use Categories and Impervious Cover
REVISED 8/21/03**

Goal: To determine land use categories and their associated impervious cover in Harris County.

Recommended Procedure: Seven land use categories are presented in the table below. An eighth “Other” category is added to allow the engineer to develop values for impervious cover not specifically defined by this paper. These land use names should be used in all reports, tables, and GIS coverages. It is anticipated that large areas can be classified with a single land use. For smaller sub watersheds of 0.5 acres or less, an isolated land use area of 20 acres will account for more than 5% of the total land. The minimum area to delineate should be 20 acres. Smaller, discrete, non-connected areas of variant land use can be considered the same classification as the area directly adjacent to it. Delineation of land use should not occur on a parcel by parcel basis.

Recommended Land Use	Percent Impervious	DLU
HD - High Density (Commercial, Business, Industrial, and Apartments)	85	100
U - Undeveloped (Unimproved, Natural, Agriculture)	0	0
GA - Developed Green Areas (Parks)	15	50
RS - Residential Small Lot (< ¼ acre) (Schools)	40	100
	40	50
RL - Residential Large Lot (> ¼ acre) (> ¼ acre, older neighborhoods with long, limited capacity roadside swales)	20	100
	20	50
RR - Rural Residential Lot (5 acre ranch)	5	0
T - Isolated Transportation (Corridors and R.O.W. for Major Thoroughfares, State Highways, Beltways, Interstates, and FM)	90	100
WL, WD - Water (Permanent Lakes) (Detention Basins including Berms)	100	100
	90	100
IC - Light Industrial/Commercial (Office Parks, Nurseries, Warehouse/Manufacturing with non-paved storage areas)	60	100
Other (such as Airports)	TBD by Contractor	TBD by Contractor

Assumptions: No assumptions are made regarding this information.

Testing Procedure: No testing was performed.

Test Results: N/A

Final Notes: The original Flood Hazard Study for Harris County adopted an average value of 35 percent impervious for a fully developed basin or watershed. This value was based on findings from “Effects of Urbanization on Floods in the Houston Metropolitan Area” (Johnson, S.L. and Sayre, D.M., USGS, April 1973). A review of literature and Design Criteria Manuals [1] from other cities across the United States has revealed land use categories and average percent imperviousness similar to those published in Urban Hydrology for Small Watersheds (Technical Release 55, Engineering Division, Soil Conservation Service, USDA, January 1965).

[1] Design Criteria Manual References – City of Griffin Georgia, *Stormwater Design Manual*; Westminster Colorado, *Design and Technical Criteria, Section 6 – Runoff*; and *Hydrology and Floodplain Analysis*, 2nd Edition, Bedient, P.B., and Huber, W. C., Addison-Wesley Publishing Company, Menlo Park, California, June 1992; Riverside County Flood Control and Water Conservation District, *Hydrology Manual*, April 1978