

Continued Enhancements to GISHydro2000

Problem

This research project involved the continued development and evolution of the GISHydro2000 program. This program automates the hydrologic analysis of any watershed within the State of Maryland or draining into the state (except for the Susquehanna and Potomac Rivers). It is important to continually develop, maintain, and update this program as new data become available, new techniques or reporting are desired, and for compatibility with other GIS products produced or used by the State of Maryland

Objectives

1. Build menu choices that execute new peak flow estimation equations.
2. Rebuild database to be in the Maryland Stateplane, NAD '83, in meters.
3. Incorporate the Maryland Department of Planning (MDP) 2000 land use coverage.
4. Refresh ultimate development coverage.
5. Build GIS-based tool to revise land use coverages.
6. Address miscellaneous MDSHA needs as they arise during the project period.

The main deliverable of this project is a revised version of GISHydro2000 – delivered as a self-installing executable program.

Description

Different tasks in this project were approached in different ways. Tasks 1 and 5 involved programming within the GIS interface to provide MDSHA engineers tools and menu choices to perform the desired analyses or modifications to data. Tasks 2, 3, and 4 primarily involved obtaining data from the MDP and using the GIS to project all existing data within the GISHydro2000 database to the Maryland Stateplane coordinate system in horizontal units of meters.

Since Task 6 was purposely designed to be open-ended, this task was approached by continually soliciting advice and direction directly from MDSHA personnel and from members of the Hydrology Panel (of which the PI is a member).

Description Continued:

This task resulted in several new features being added to the GISHydro2000 program, principal among them were tools for increased interaction and reporting of the Time of Concentration calculations for the velocity method and a new tool to modify the hydrologic condition associated with a given land use category on a category-by-category basis. This tool is pictured at right and described completely in Appendix C of the report.

Results

This project attained all tasks outlined above in the objectives section. Interim versions of the GISHydro2000 program were posted at the GISHydro website and updated numerous times over the course of the project. A final version of the GISHydro2000 software was developed and posted on May 14, 2004. Aside from the conversion to horizontal metric units, one of the main tools developed during this project was the tool to modify land use with complete flexibility on the part of the engineer to digitize the relevant land area, define the land use type, and specify the appropriate curve numbers. A small screen-shot of the dialog box for this tool is shown at right and described completely in Appendix A of the report.

Report Information

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