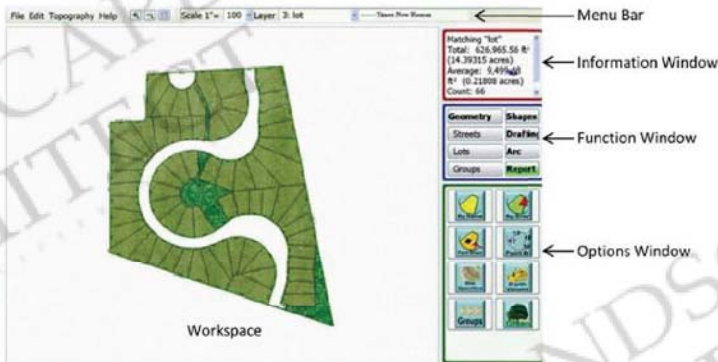## Technology

Performance Planning System Review

by Ashley Calabria, MLA, University of Georgia Faculty, College of Environment and Design, Caldwell Hall, Athens, Ga.
Editor's note: In 2010, Ashley received the Dean's Award for Innovative Teaching

Performance Planning System (PPS) software and educational support is an innovative application that allows the user to lay out commercial and residential land developments based on computational factors of spatial information critical for larger scale sustainable development.

Developed by Rick Harrison and thoroughly explained in his supporting book *Prefurbia*, those factors are based on three major categories, the 3 E's)

- **Economics:** Make sure the development is economically feasible.
- **Existence:** Make design decisions that enhance the livability of the users.
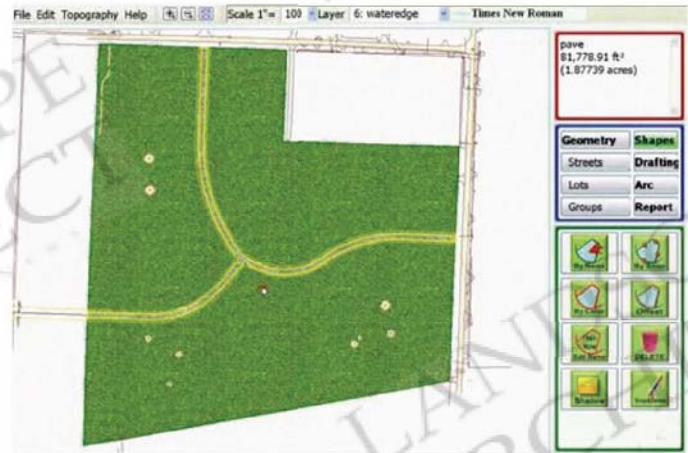- **Environment:** Develop land using low-impact strategies.

The Shapes Function lets you select the roadways by their color and provides the user with instant square footage. This is an excellent feature, given that most CAD programs use lines to outline the roadsides, but not allowing a quick internal calculation of paved area.

site area or bearings provided by the surveyor. Contours can also be imported. PPS can generate a quick digital terrain model, indicating lower contours in red and higher contours in green, alleviating the potential of misreading contour intervals.

Road layout is easily done by drawing the anticipated road centerline using a series of lines, and then allowing PPS to generate arcs with a user defined radius. PPS displays arc options adjacent to the centerlines drawn and can be added on to the existing centerline line segments. Once the road centerlines (including arcs) have been defined, the streets function reads those centerlines and automatically includes road widths, right-of-way space and a sidewalk option that can be adjusted by the user.

The Shapes function lets you select the roadways by their color and provides the user with instant square footage. This is an excellent feature, given that most CAD programs use lines to outline the road sides, but not allowing a quick internal calculation of paved area.

The Shapes option is also used for the creation of lots. When spatial shapes are created in PPS, attribute information, such as surface area, cost, and environmental features like pervious and impervious surfaces can be tagged to those shapes by using the Fill Setup feature. When drawn on the plan, instant feedback is provided in the Information Window, allowing for quick decisionmaking and adjustments. Texture and color can be added to those shapes for higher quality final presentations. Beyond drafting for final drawings and presentation, there are some other features that are unique to PPS.

The software interface is extremely easy to read, with simple icons and large fonts.

The PPS Interface

The "performance" part of the software is evident in many ways. The interface is extremely easy to read, with simple icons and large fonts. The workspace is divided into five major areas.

The Menu bar includes the more common menus: File for saving, Edit for modifying features, and Topography for contour control. This area also includes zoom capabilities, simple layer information and user defined characteristics. The workspace is large and clear with no graphic interference from toolbars. On the right hand side are three simple windows: The Information Window provides instant feedback on commands and spatial entities within the drawing. The Functions Window holds the primary drafting tools, which can be controlled with custom features in the Options Window below.

The software is designed to compute and draw at an accuracy that is usable by engineers and surveyors. Base maps can be imported from AutoCAD. PPS can easily and quickly post surveyor units and distances to ensure the base map includes accurate geometry, but also identify any discrepancies in overall

The Report Function

PPS calculates the design factors of the 3 E's with the Report Function. The Report Function takes the attribute data

Technology
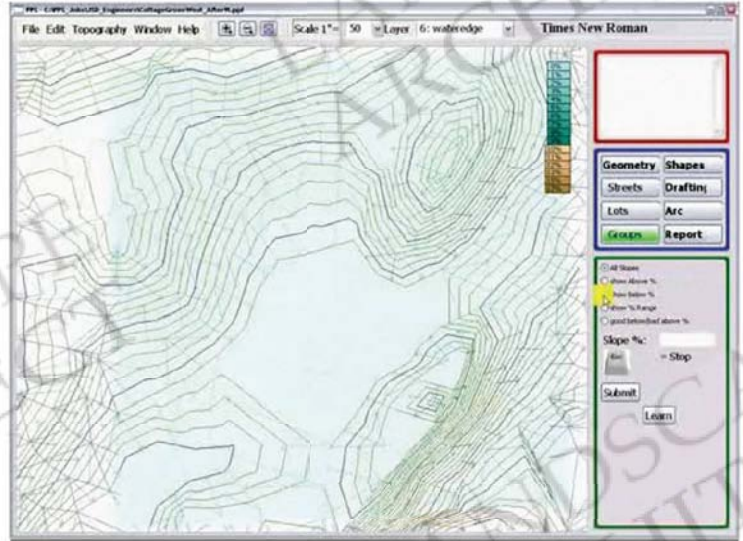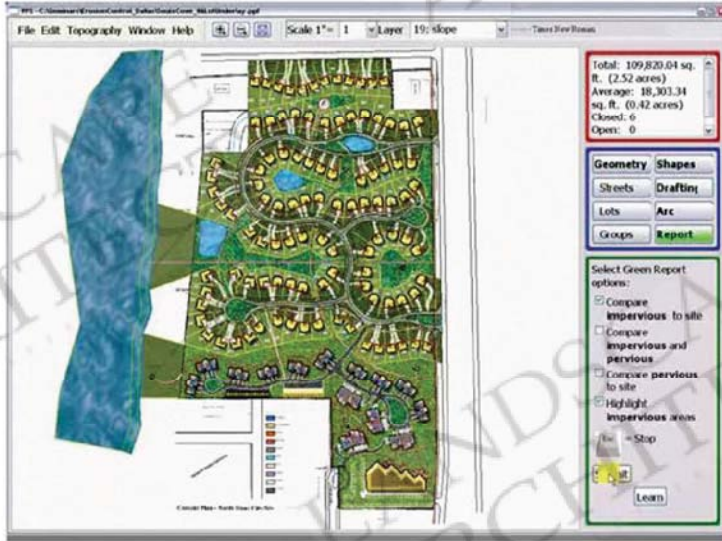
Top, Left: The Report Function takes the attribute data from the shapes and provides instant feedback about your design decisions and checks geometry corrections for accuracy. The Green option under Report allows the user to compare impervious and pervious areas.

Top, Right: A quick selection from the Topography menu can read the DTM and display an overall slope analysis or highlight a user-defined slope range and display hydrology directions.

from the shapes and provides instant feedback about your design decisions and checks for geometry corrections for accuracy. This geometry check is critical to provide correct estimates generated in the report. Reports produce a variety of tagged and embedded information for selected spaces: area in square feet, lot number, a legal description report using surveyor units and perimeter of specific items within the space, such as a house on a lot, and total, average, smallest and largest lot sizes. You can also query the database by color or texture for confirming minimum and/or maximum areas based on development requirements. The Green option under the Report Function supports the environmental aspect of design by displaying pervious and impervious pavements that can be tracked and tabulated for comparisons.
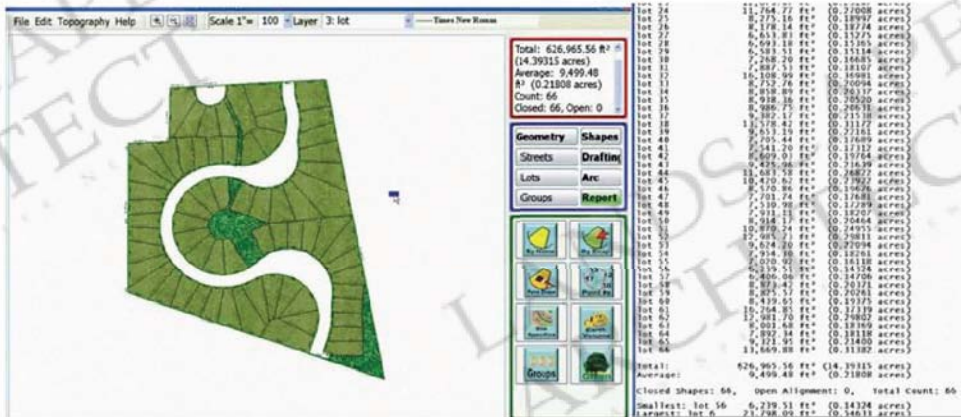
The Topography Menu

The Topography Menu has an array of ideal instant display and analysis functions. Using an existing topographic map

with assigned elevations, a digital terrain model can be quickly generated and from there adjustments can be made in interval, color or visual preference. A quick selection from the Topography menu can read the DTM and display an overall slope analysis or highlight a user defined slope range and display hydrology directions.

Review

The PPS application itself is relatively easy to use, but what makes PPS really unique is the educational component. The concepts behind the 3-E's and how they continually interact with the software are a great addition to computer technology. The PPS website has some useful information and they seem very willing to contact users and offer support. PPS is also developing 3D technologies allowing for animation using gaming technology.

The only complaint I would have is that the tutorials (both online and the hardcopy manual) skip around and do not continuously flow through the development of a single project, thus losing the flow of connection for the entire process. This could make completing a real project more time consuming until the user becomes more proficient with the application. But overall, with a price tag just under $2,000, it is a fun and easy way to look at large-scale land development created by a team of passionate, creative and environmentally sound individuals.

The Report Function tabulates lot information in sq. footage and acreage.

For more information on Performance Planning Systems, please visit: www.performanceplanningsystem.com