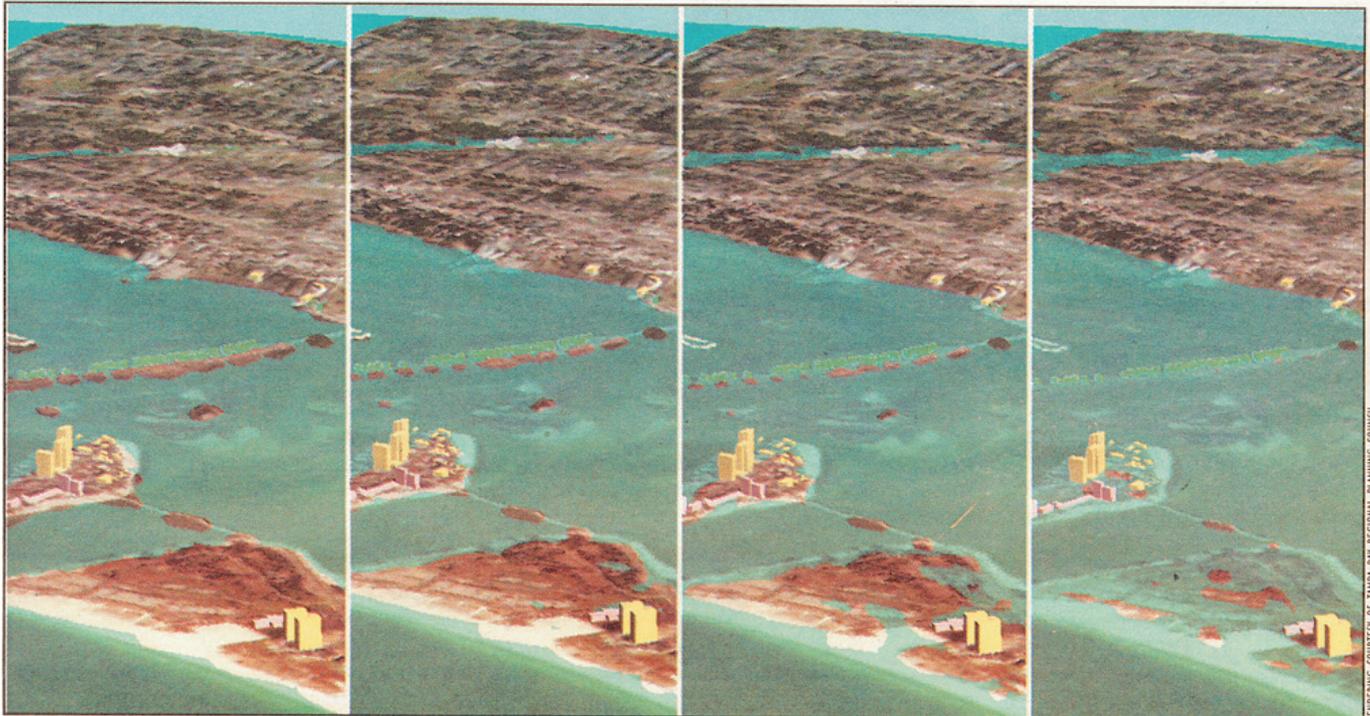


## Higher ground

NASA technology comes to the aid of community planners

BY KEN SALGAT STAFF WRITER



This four-frame spatial growth modeling image depicts a storm surge in Clearwater Harbor and its barrier islands in the wake of a Category 3 hurricane.

The surge is configured as a direct hit to the area, the affect being a 15-foot storm surge to the islands and beachfront communities.

In Pinellas County, residential growth planning is becoming rocket science.

NASA-supported technology is now being compiled for a computer-planning tool.

The model, called spatial growth modeling, will make the planning process easier for decision-makers, planners and the public by allowing them to see the effects of a project before even a pebble is turned.

The process involves taking reams of information and feeding it into a system of virtual reality models that can be run on a low-end laptop. When using the results, planners then can offer quick responses about the impact of residential developments, new roads and other changes.

The answers come in the form of easy-to-digest graphics.

Pinellas County, the Southwest Florida Water Management

District and Florida Department of Community Affairs have joined the Regional Planning Council in this effort.

The partners will combine resources to aid regional planning while using the technology for their planning purposes.

"We live in a visual, video-game world," said Avera

**Todd Wynne**, planning director for the Tampa Bay Regional Planning Council. "And this makes it easier for the public to get excited about taking part in the planning process. One of the things we're doing is kind of trying to cherry pick models from other departments. Most plans, like transportation, land planning, etc., have their own ways of doing things. We are looking to multiple scenarios that all can be put in one pot."



Output from the new program will differ from what technology offers for those involved the planning and approval processes.

"Some of the models out there, like the transportation model, once it's set, it gets used for a while without updating," said Wynne. "We want ours to be more of a gaming model. This would allow us to test policy-maker ideas."

For example, if someone wants to see the impact of a new housing development on local roads and water resources, the model, via a simulation formed from a combined database, reveals satellite images of the area and identifies the roads that would be most heavily traveled.

The technology also will allow planners to do things to the model such as add more lanes, roads or alternative routes to see if that would help alleviate congestion.

If planners ask what a Category

3 hurricane would do to the Tampa Bay area, they can see a simulated before-and-after image of what a storm surge would do to, say, downtown Tampa.



**Wynne** This new modeling technique can answer planning questions almost instantaneously. "Right now, if someone asked us a 'What if we did this?' question, we're not equipped to do it in a timely and financially responsible manner," said Wynne. "We're hoping to get to the situation where we could do something within a month. It wouldn't be like a year-long scenario. This is going to save time, money and effort. We're still tweaking what limited models we have now."

One thing the council is attempt-

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# Developers can use crystal ball to predict patterns

BY KEN SALGAT  
STAFF WRITER

**CLEARWATER** — Seeing is believing these days with residential planning.

Construction engineering firms in the Tampa Bay area have recognized this and responded with high-tech methods that allow planners to look at the future.

TBE Group Inc. in Clearwater is among a number of firms expanding their reach by offering clients electronic visual planning methods aimed at easing the governmental agency review processes.

The company, founded in 1983 as Tampa Bay Engineering Inc., offers residential and commercial developers, municipalities and other clients engineering and planning services. These services include everything from land and site development and planning to construction management and utility engineering.

And the company accomplishes this in a visual manner.

William C. Vicary, director of corporate marketing, said that because many residential developments include more than just homes on dirt, the business has been good for the engineering firm.

"There are aspects to a residential development that many people do not take into account early," said Vicary. "Is there adequate infrastructure available? Will the area be able to house a significant community that likely will dump significant traffic into an existing roadway?"

To answer these questions, TBE and other engineering firms such as CH2M Hill, use a variety of software programs and other high-tech pieces of equipment, including those that conduct transportation network analysis and produce traffic signal cycle length splits and offsets for coordinated traffic signal system timings.

"We're doing cutting-edge work these days, being able to simulate everything from airport modeling to residential planning," said Correggio Peagler, director of CH2M Hill's Global Imaging System

project in Atlanta. Global imaging allows companies to utilize satellite images to create geographically accurate planning models. GIS has a variety of applications but is only beginning to gain acceptance in land use planning, said Peagler.



Wren McAllister (l) and John Meyer with the Tampa Bay Regional Planning Council sift through volumes of paperwork for proposed projects. It is expected that spatial growth modeling will greatly decrease this material.

"We're seeing a shift in how technology is being used," Peagler said. "Planning agencies are combining global imaging information with their models to create more predictable outcomes for their projects."

TBE has begun using a laser-guided data collection system and range finder to measure and record designating marks from known topographic features.

The laser range finder has a built-in inclinometer and weighs about 2.5 pounds, said Vicary.

"It allows crew members to automati-

cally compute the horizontal distance from the marking point to the known topographic features," said Vicary.

The Tampa Bay Regional Planning Council is working on compiling a planning model that can take information

for these types of tools is immeasurable."

It also reduces paperwork.

Rather than fighting through piles of paper, planners soon will have access to a majority of planning studies and projections electronically and online.

"There's a real possibility of lightening the workload," said Vicary.

TBE and other civil engineering firms can do that — incorporate site layout, drainage, utility, landscaping, access and other special requirements into realistic final designs that address a project's specific needs while meeting regulatory requirements.

"It is hard to believe, but a lot of our clients come to us in the latter stage of the development process to find out exactly how what they've already started is going to work when it's completed," said Vicary. "We're able to take the site specifications from their original plan, incorporate them into existing infrastructure and amenities in an area and come out with projections for things like traffic flow and additional needs."

An example is the rising concern about adequate "green" space, said Aubie Nanninga, a global imaging specialist and technology manager for CH2M Hill's Southeast region.

"More and more cities seem interested in having controlled growth to mitigate impacts of suburban sprawl," Nanninga said.

The planning process may include developing alternative evaluations for site layouts, driveways, parking, traffic flow, building construction and landscaping. TBE then uses these concept plans to meet with regulators and identify any roadblocks.

"A smooth permitting process allows clients to move quickly from design through construction," said Vicary.

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## SURGES: Three years and a \$400,000 investment will bring planning models to fruition

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ing is to create a model that can accept a variety of information formats.

"We want to integrate what other people are doing, but we also want to keep it simple," said Wynne. "We're going to pull the cream off the top of those silos, and use the compiled information that will bring together everyone's modeling efforts. We're not going anywhere regulatory with it. It is going to be a visual planning tool."

By merging readily available information into one combined database, planners can assess the availability of police, hospitals, evacuation routes and any number of needs, and identify the strengths and weaknesses that need attention.

"The information is already available," said Will Orr, director of the NASA program at Prescott College in Prescott, Ariz., in a council publication.

Orr's team was hired to construct the Spatial Growth modeling software for the planning council.

"Piles of data and pages of staff reports can often bury decision-makers in paper and numbers so that it's hard to see the critical issues," he said. "It's usually a public official that comes to us asking for help."

That's exactly what happened with Barbara Sheen Todd, chair of the Pinellas County Board of County Commissioners, who also serves as vice chair of the Regional Planning Council.

She raised the issue of utilizing outside information.

"I think the Tampa Bay area is ripe for having this type of tool for the policymakers," said Todd in a recent public hearing. "We could use this to look at water resources, development patterns, social services, economic development. There's no limit to the variables we could use. And the planning council can serve as a major technological resource center."

It will take about three years to build the suite of digital planning models and cost about \$400,000. But once the investment is made, alternative development scenarios can be easily analyzed and the data used to reveal how decisions will play out over time.

And some information will become available to planners much sooner than the three-year completion date. Users can expect access to some limited information by January.

"We'll be rolling some information out there at the beginning of the year," said Wynne. "We should have environmentally sensitive lands coded in. We should have roads coded in. The environmental and land use could be rolled out earlier. We have some damage scenario information coded in. This could help us show the methodology to damage assessment."

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