



## Current Initiatives

### ***Accelerating EPT***

*REGAL has been fortunate to take part in a task sponsored by DHS Science and Technology Directorate, and the SERRI Program to accelerate the Evacuation Planning Tool (EPT). The task will utilize existing techniques from cutting edge technology to speed up the overall processing time of EPT. The first of three phases will initially cut the processing time in half with the other two phases performing modifications to make the tool a near "real time" application.*

*(cont'd on page 3)*

### **The Business of Disasters**

*Article directly quoted from the Vol. 29, No. 18 Issue of the Baltimore Business Journal, Sept. 2011*

For some companies, the 9/11 attacks meant shifting to an almost brand-new line of business.

Before the attacks, Regal Decision Systems, a White Marsh software company, mainly focused on work with the federal government helping to keep commerce flowing speedily through U.S. borders with Canada and Mexico. After, that focus shifted to maintaining security at those borders while shepherding goods.

But more significantly, the company began to apply its expertise and software to a major new industry — football. More than a third of Regal's business is now focused on evacuation and disaster planning for major sporting events and it has doubled its staff to 40 since 2001, said Joseph J. Borkoski Jr., the company's president.

It has done work for seven NFL stadiums and is working with M&T Bank Stadium and

the home stadiums of the Dallas Cowboys, Indianapolis Colts and New York Jets and Giants on an NFL pilot security program. The software helps teams simulate

and visualize evacuations from empty stadiums or get as many spectators under cover as possible, to an extent that wasn't even considered before 9/11.

"Prior to 9/11, we had emergency plans, but we didn't necessarily update them on an annual basis. We didn't necessarily drill for

them on an annual basis," said Roy Sommerhof, vice president of stadium operations for the Baltimore Ravens. "Now we do table-top exercises and on some occasions, full-scale exercises with state and city agencies involved."

 [\*\*Click here for additional information on this article\*\*](#)



***Joseph J. Borkoski Jr.'s Regal Decision Systems began designing emergency evacuation plans for the Baltimore Ravens after 9/11.***

# regal decision systems

## Dedicated to Safety and Security

### BorderWizard™ Software Assists Operations at US Borders

According to the January 2010 Land Border Ports of Entry Concepts of Operations document provided by U.S. Customs and Border Protection (CBP), there has been a dramatic increase in violence in Mexico fueled by the smuggling of weapons and large amounts of cash from the United States into Mexico. For years, CBP inspections at land ports of entry (LPOE) have primarily focused on securing the border from the illegal entry of persons or goods into the United States. However, the increasing violence by the drug cartels in Mexico has compelled CBP to place a stronger focus on the use of outbound vehicles to smuggle illegal exports of firearms, ammunition, and monetary instruments from the U.S. and into Mexico. To improve the effectiveness of the current outbound operations there may be a need for additional infrastructure, staffing, and inspection technology implementations at some of the LPOEs.

The level of renovation that the CBP Office of Field Operations (OFO) Outbound Program intends to perform on a specific LPOE will be determined based on a CBP

system, ranging from temporary facilities to permanent solutions depending on variables such as traffic volume, site expansion space, and operations. Over the past year, Regal Decision Systems (REGAL) has been contracted through General Services Administration (GSA) to perform site surveys and analysis for 21 high priority southern land border crossings. REGAL is using the BorderWizard™ Version 6.8 simulation software to evaluate the outbound inspection infrastructure capacities and practices at existing LPOE facilities to determine what improvements are necessary to adequately handle the outbound traffic volumes with varying constraints, such as percent of traffic inspections and inspection wait time thresholds. In addition, the software is being used to analyze the proposed port traffic design and any expected renovations to identify possible flaws.

The analysis results will assist CBP in determining the required capacities necessary to support the desired levels of inspection, and any design interactions that may exist at each of the studied LPOEs.



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***Seize the Power of Simulation Technology***

## Support & Exercises

### Accelerating the Evacuation Planning Tool



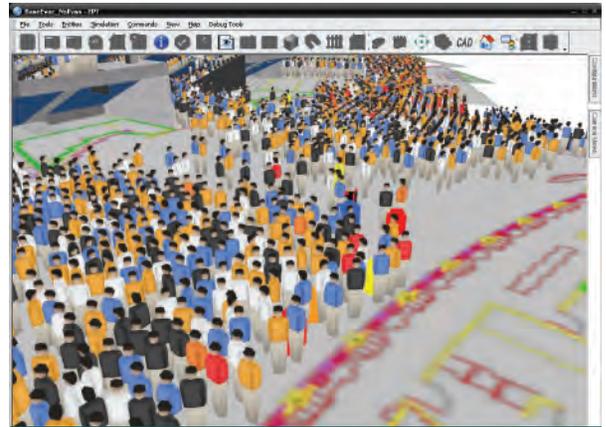
*The collaboration with NCCHE will result in faster simulations in EPT, as well as enhancing the detail and overall look of the output visualizations.*

REGAL is pleased to announce they have entered into a collaborative research and development effort with the University of Mississippi's National Center for Computational Hydroscience and Engineering (NCCHE). NCCHE's mission includes fostering the growth of research in computational hydroscience as well as engineering and has gained national and international recognition.

The project is divided into two phases with an overall goal to ultimately increase the execution time of large-scale evacuation-simulation models, specifically the Evacuation Planning Tool (EPT), by using Graphics Processing Unit (GPU) parallelization. In particular, the project will focus on developing GPU based implementations of currently utilized methods in EPT. This effort will also include an overall assessment of the EPT to identify other possibilities of improvement that can be implemented during a 2nd phase to ultimately achieve near real time simulation speeds needed for operational modeling.

The GPU parallelization, which is the Task 1 of Phase I of this project, constitutes the first step towards real-time execution of the EPT. Phase I is intended to provide a significant reduction in the computational time in a short-time period using a practical approach that consists of optimizing the most critical component from the point of view or simulation time. Phase II of the project will look into the entire EPT code and the methods employed within for finding ways to further cut down the simulation time to achieve real-time, or at least near-real-time, execution speeds. The introduction of new methods and parallelized optimization of current algorithms will facilitate the goal of allowing the EPT to be utilized in a tabletop exercise environment.

Additionally, the research project will look at methods to improve the fidelity of the 3D visualizations. Currently EPT 3D visualizations use simple representations (low polygon cubes and tetrahedrons) for people. Simple representations are chosen since large numbers of people in the visualization impose considerable strain on the video cards and slow down the visualizations. Techniques to render high polygon representations of people using existing video cards will be researched in Phase II. The GPU tessellation technique may prove to be a promising path to follow to achieve realistic visualization with high quality rendering.



*Among the upgrades to EPT will be a focus on more detailed models, adding depth to the visualizations.*

# people & profiles

## REGAL at the Forefront

### EPT Software passes DHS SAFETY Act

REGAL is pleased to announce they have completed the Support Anti-terrorism by Fostering Effective Technologies Act (SAFETY Act) designation application for the Evacuation Planning Tool (EPT) and has received an award of "Developmental Testing & Evaluation Designation" (D-TED). The D-TED Designation applies directly to EPT as well as REGAL's services and is approved as a Qualified Anti-Terrorism Technology or "QATT". In addition to the benefits provided under Designation, the Evacuation Planning Tool will be placed on DHS's Approved Products List for Homeland Security.



**SAFETY ACT**

The SAFETY Act provides important legal liability protections for providers of Qualified Anti-Terrorism Technologies. It also provides two levels of liability protections: Designation, which typically requires evidence of proven effectiveness, and Certification, which usually requires evidence of consistently confirmed or enduring effectiveness.

### REGAL News & Events

REGAL would also like to take this opportunity to recognize Will Reid. Mr. Reid recently took a position as a Government employee. Unfortunately, we received news recently that Will Reid, Jr. had passed away at the young age of 43. Mr. Reid was a former Marine with 11 years of faithful and distinguished service serving the Navy and Marine Corps.

Will was employed with Regal from April 2009 to August 2011. During that time, he supported the V-22 Avionics and Air Vehicle Deputy Assistant Program Manager/Logistics (DAPMLs) until he became a Federal Employee.

Mr. Reid achieved the rank of SSGT and received many Campaign Badges as well as Expeditionary Medals, including the Southeast Asia Service Medal w/one star, NATO Medal, Armed Forces Expeditionary Service Medal, Armed Forces Service Medal, Kuwaiti Liberation Medal, and National Defense Medal.

Will's infectious smile and great attitude will be missed.

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